



The Risk Reporting: Evidence from Portuguese Companies

*International Master of Science in Business
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Abstract

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Financial Reporting and disclosure are potentially important measures for managers to disclose firm performance and governance to external investors. Nowadays, markets are globalized and that drives to an easier growth expansion by companies. However, this globalization meant an increase of competition and the creation of new laws by governments.

On the other hand, external investors demand more information about firms. Due to the corporate failures that have occurred in the past, the confidence was broken between insiders and outsiders. Consequently, there is a need by companies to disclose more information in order to improve their image and to become more transparent. Moreover, the impacts may arise on the financial side by decreasing the cost of capital and monitoring costs. Therefore, the topic of Risk reporting and control has been receiving much attention and it is probably one of the main Risk topics that will be potentially discussed in the future.

This study, examines the association between several independent variables and a single dependent variable. It was concluded that some of our independent variables namely the capital structure, the profitability and market capitalization are not associated with risks' disclosure among the PSI-20 companies' Index. Contrary to the previous results, we verified the Total Assets, Coverage ratio (measures the extension of risk communication), and a specific industry or event may have positive and significant relationship with the dependent variable of this study.

On the second part of this study it was provided evidence about the managers' perspectives regarding this Risk Reporting topic. Evidence is shown that managers want to allocate more resources in the future in the areas of Risk Reporting. However, it was concluded that the gap of information existent between external investors and managers will persist because those managers want to keep their level of voluntary risk disclosure. Although they have not attributed much importance to this important topic of information asymmetry (they could reduce the gap by sending information to markets), they want to help investors on their processes of investments' decision making with the lowest possible information disclosed.

Sumário

Título: O Relatório de Risco: Evidências de Empresas Portuguesas

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O Relato Financeiro e a sua divulgação são temas realmente importantes que os gestores devem ter em consideração na divulgação de informação para investidores externos. Hoje em dia, a globalização dos mercados levou a uma expansão mais acentuada do crescimento por parte das empresas. No entanto, esta globalização significou um aumento da competição nos mercados, a criação de novas leis por parte dos governos.

Por outro lado, os investidores externos exigem mais informações sobre as empresas. Devido a falências de importantes empresas que ocorreu no passado, a confiança foi quebrada entre os investidores e gestores. Consequentemente, há uma necessidade por parte das empresas em divulgar mais informação a fim de melhorar a sua imagem e tornarem-se mais transparentes. Esses impactos podem verificar-se no lado financeiro da empresa pois com esse aumento de informação estas poderão reduzir os seus custo de capitais e custos de monitorização. Assim sendo, o tema da comunicação de riscos e seu controlo tem recebido muita atenção e será provavelmente, um dos principais temas de risco que serão potencialmente discutidos no futuro.

Este estudo, que analisa a associação entre as diversas variáveis independentes e uma única variável dependente. Através deste estudo concluiu-se que a estrutura de capital, a rentabilidade e capitalização de mercado não estão associados à divulgação de riscos por parte das empresas do PSI-20. Contrariamente ao resultado anterior, verificou-se que o Total do Ativo, o Índice de cobertura (mede a extensão da comunicação do risco), e uma determinada indústria específica ou evento podem ter uma relação positiva e significativa com a variável dependente deste estudo.

A segunda parte desta dissertação fornece evidências sobre as perspectivas dos gestores em relação ao tema da comunicação do risco. Foi possível verificar que os gestores querem alocar mais recursos no futuro nas áreas de Relato de risco. No entanto, conclui-se que a lacuna de informação existente entre estes e investidores irá manter-se dado que os gestores querem manter o seu nível de divulgação de risco voluntário no futuro. Embora os managers não terem atribuído grande importância ao tema da assimetria de informação (gestores poderiam reduzir esta lacuna enviando informação para os mercados), estes querem ajudar os

investidores nos seus processos de tomada de decisão em relação aos seus investimentos divulgando o mínimo de informação possível.

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Chapter 1. Introduction

1.1. Background

The subject of **Risk Reporting** is no longer a particularity of the banking and insurance sector, in which it would be usual to deal with this specific type of information about risk management and its disclosure. Some years ago, it was possible to verify from corporates' annual reports and press releases, that the majority of the companies who were creating and developing the tools for a greater effectiveness of Risk Management and Risk Reporting were mainly banks due to the regulatory standards demanded by the Europe Central Bank. But the business world has changed and recently, not only banks have instruments in order to manage and disclose the risks but also the non-financial corporations have adopted those strategies.

Several reasons might influence the amount and **quality of corporate risks' communication**. One of the main drivers is the external investor. Some years ago the typical investor was defined as an agent who liked to invest resources without facing the need for a deep analysis on companies' reports. Nowadays, due to many events (corporate failures, fraud, crises etc.) the investor's concerns have changed. Nowadays he feels much more informed about the companies where he invests his resources. Moreover, he requires more information in order to mitigate their uncertainties that might arise in the process of investments' decision.

Therefore, the topic of Risk Reporting has been gaining more and more importance from the **stakeholders' perspective** as they lost their confidence after seeing the downfalls of some giant corporations evolving hidden information. They demand more transparency and communication regarding the companies' businesses and all the risks that might affect its future performance. In order to meet their expectations companies have allocated more resources to this topic. However, there are still companies that do not disclose information to outsiders. Consequently, they give rise to an asymmetry of information between managers and external investors.

Related with the previous topic is the **Risk of Internationalization**. As companies move across boundaries in search of new geographical markets and eventually economies of scale, the context of internationalization has been gaining importance. This strategy has been considered the best strategy for companies to reach growth and long-term sustainability. For these reasons and as the external investors are becoming more international, there is a

tremendous need to manage and disclose the risks and uncertainties found overseas in order to reduce the future negative impact on company's performance.

1.2. Focus

This dissertation is primarily focused on **Risk Reporting**. The aim of this Master's Thesis is to assess the factors that might influence the disclosure of information about risks. Furthermore, we would like identify and describe the most common risks reported on the annual reports of the PSI-20 companies index (either in the home-based market or foreign markets). Moreover, we would like to determine if there is a trend for the future about the subject of Risk Reporting and alert to the information gaps between outsiders and insiders. For that purpose, we made surveys which were answered by managers of several Portuguese companies.

The way **Risk Reporting** has been managed by the companies seems have improved when comparing with previous years. However, external investors doubt if it will be enough to avoid possible future corporate failures and financial disasters on the Portuguese market (as we recently saw with BES group).

Regarding the **Risk of internationalization** and with the support of the appointments and surveys made to Portuguese companies' managers that operate overseas, we would like to make an assessment and compare if those risks are the same as the risks that they use to find in their home-based market (Portuguese market).

Last but not least, we will take into consideration all the managers' opinions for our research and data analysis in order to come up with some conclusions and possible recommendations for further events.

1.3. Aim

The aim of this dissertation is to provide a better understanding and overview of **Risk Reporting** and **Risk of Internationalization** by making a deep analysis of the factors that influence the disclosure of information. With those purposes, a review of past literature, an assessment of the annual reports of PSI-20 companies Index from 2005 to 2013, some appointments with auditors and surveys answered by managers will be conducted. By understanding how companies manage and report risks in all the markets in which they operate, we developed a research analysis and also suggest some useful recommendations.

Through the period covered from 2005 to 2013, the annual reports were analyzed for the years 2005, 2007, 2009, 2011 and 2013 identifying important events in terms of accounting standards, regulation and unexpected events. The companies that were chosen for the assessment of Risks were the Portuguese companies that are or have already been part of PSI-20 Index. Furthermore, those companies have an international dimension that brings added value to this dissertation regarding the topic about Risk of internationalization. In fact, those companies have a significant percentage of their total revenues outside of Portugal and for that reason, we could reach some conclusions when studying the different risks, tools used and factors that might influence the company's future performance.

1.4. Problem Statement and Research Questions

As it is already implicit in the previous sub-sections, the main objective of this dissertation is to assess the risks that Portuguese companies identify either in Portuguese or foreign markets, as well as the factors that might affect the disclosure of those risks, measuring the quality and quantity of information disclosed through the annual reports. Therefore, in order to provide an accurate and concrete analysis about Risk Reporting and Risk of Internationalization, some research questions were defined:

- 1)** What are the main risks disclosed in the annual reports of PSI-20 companies index?
- 2)** Is there any relationship between the quality of Risk disclosure and variables such as coverage, profitability, capital structure, size of the company, events (IFRS or financial crisis), level of internationalization, information period, industry, Independent Members on Supervisory Board?
- 3)** What are the most important factors that drive managers to disclose additional information?
- 4)** Is it possible to identify, from the companies' perspective, the trend of future risk disclosure?

1.5. Outline of Dissertation

This dissertation embraces several different chapters with the final purpose of getting answers to the research questions defined. Following this section, on the **chapter 2** we review the current literature on the different topics, focusing specifically in the factors and consequences of risk disclosure, the importance of the Sarbanes Oxley act (which might be considered a driver of this subject) and the risk of internationalization in terms of risks and uncertainties that may influence the business operating activities of the companies.

Chapter 3 describes the methodology used namely the variables and hypothesis that were defined in order to perform a regression with data collected from the annual reports of PSI-20 companies' Index.

In the **chapter 4** we present the characterization of the sample (descriptive statistics), a deep analysis of our dependent and one of the independent variables and also the results from the regression models used.

We then discussed in **chapter 5** the results of the hypothesis initially defined as well, specifically focusing on the factors that influence the risk reporting.

Chapter 6 presents the results of our survey assessing the answers collected from the managers.

Finally, a summary of the main conclusions, possible recommendations and limitations are presented in **chapter 7** taking insights from the whole project in a summarized way.

Chapter 2. Literature Review

This literature review chapter has the purpose of presenting the literature related directly or indirectly with the main dissertation subject, the factors that influence the disclosure about possible risks that might influence the company's performance. We searched for the relevant articles in the Top Journals of accounting and finance. We intend to analyze each of the related topics and go through their interconnections and resulting implications.

2.1. Risk description

This topic has been discussed over the years by different authors that have provided their own definitions and assessments. Several years ago, the concept of risk was defined by Knight (1921) as “the decisions where the consequences of actions are subject to known probability distributions”.

Due to the instability and constant development of markets other researchers highlighted the importance of the Risk's subject, which was defined as “the uncertainty associated with both potential gain and loss”, Solomon et al. (2000) or as “the possibility that the actual input variables and the outcomes may vary from the originally estimated”, Remenyi & Heafield (1996).

On the other hand, the Institute of Chartered Accountants in England and Wales defined the risk's definition as a wide concept because it includes several sub-categories of main risks that may affect a company. We provide in the next section several definitions for each type of risk.

2.2. Types of Risks

As it was mentioned on the previous section, the importance and dimension of each type of risk depends on the business activity and place where the company is operating. There are many definitions that may characterize each type of risks mainly depending on the authors' point of view.

In this dissertation we have assumed **nine major risk sub-categories**: financial risks, market risks, regulatory risks, operational risks, reputational risks, social and economic risks, human resources management risks, environmental risks and supply chain risks.

Financial risks according to Cabedo & Tirado (2004) in this category the most common risk among companies is the credit risk, which may be defined as “the possibility that over time, a

decrease in the real value of firms' client portfolio may occur as a result of credit quality decadence suffered by those making up the portfolio".

Market risks are those risks that might be originated outside the company, such as strategy implementation, price of the stock or commodity, Jorion (2000), competitors growth or even demand's volatility.

According to Holburn (2001), who suggests that **political risk** "may be broadly defined as the probability of a government using its monopoly over legal coercion to refrain from fulfilling existing agreements with a multinational enterprise, in order to affect the redistribution of rents between the public and private sector". It seems that at some point in time the public sector might behave in its self-interest causing unexpected losses on companies, Henisz (2000). Therefore, companies are nowadays more concerned about the potential laws changes that may influence dramatically their performance in the future. Moreover, managers have been building relations with governments from those countries in order to avoid and mitigate the risks.

However, political risk is not only related with governments' policies but also with the instability and possibility of having a war between countries or within the country.

Operational risks are those risks that are "inherent to any problem related direct or indirectly with losses resulting from inefficient and ineffective errors either personnel errors or systems errors", (Cabedo & Tirado 2004).

Reputational risks or "integrity risks" are the ones that may arise from "management fraud, employee fraud, illegal acts and unauthorized acts, any or all of which could lead to reputation loss in the marketplace" ICAEW (1999). Recent years have witnessed a growing interest in this specific risk as one of the sources of firms' value creation. In fact, corporate image and brand awareness may be a crucial factors in customer's choice of product A and not product B. Due to that firms have been applying more resources in this area in order to improve their corporate image.

The **social and environmental risks** may be considered as "actual or potential threat of adverse effects on living organisms and environment by effluents, emissions, wastes, resource depletion etc. that arise out of an organization's activities", ICAEW (1999).

The **Human Resources Management Risks** and **supply chain risks** may be also implicit on the operating activities of companies. Risks in this area are related with the ability of the firm to retain the talents, the payment of salaries, etc. Retaining the best people in the company

and allocating resources in order to develop their skills and knowledge is fundamental for the long-term success of a company. On the other hand, building really good relationships with **suppliers** is extremely important to keep a high level of products' portfolio. The creation of several agreements with more than one supplier developing high level of transparency may be factors that improve the operating business of the company (company select the best raw-materials etc. and provide value creation for the people that are living in the place where the company operates). Possible risks in this area may arise from the unavailability of such suppliers to deliver the products in the best conditions or having sudden stock outs.

In order to explain some differences between our assumptions and **ICAEW** about the definitions of major risks sub-categories, we provide the **appendix 1** describing the types of risks and its definitions.

2.3. Risk Management and Internal Control

After making a brief description of all the risks that may be found in our analysis, it is important to summarize the importance of Risk management and control.

This concept was introduced some years ago when managers realized that would be important to create tools mitigating uncertainties and risks that could affect their business activities. Developing this concept would be also “essential for the maximization of shareholders' wealth as it aims to maximize profitability while at the same time reducing the probability of failure”, Solomon et al. (2000). Afterwards, throughout the years we have seen the downfalls of some corporations, which alerted investors about certain sources of risks. Consequently, with higher information required by outsiders, managers realized that the Risk management tools should fit better the companies in order to obtain great performances on the business activities. However, those approaches were not sufficient to prevent, for instance, the real estate bubble. Hence, after that event, external investors and also ordinary people became more septic about the effectiveness of managers' policies.

The recent years revealed a growing interest in the Risk Management by companies. This may be a source of opportunities as it allows for a deeper knowledge of the markets, the internal processes that a company may improve, allowing the adequate protection against risks. On the other hand, companies with a large scale have reached a point where they do not have a choice: they must implement and develop this concept also because they are always supervised by the regulators (bank central union and CMVM) and auditors. Therefore, this area is extremely important in every company because without a proper functioning of this

department it would not be possible to effectively disclose the risks associated to business activities.

2.4. Risk Reporting

The area of Risk Reporting receives a considerable amount of attention by all the agents that have interests in the institutions. Institutional investors are concerned about the effectiveness and trustworthiness of corporate annual reports. Cabedo & Tirado (2004) have strongly supported the idea that the “**lack of information** on risks facing companies is one of the main weaknesses in the accounting information disclosed by firms”. For instance, we recently had in Portugal the case of Banco Espírito Santo that disclosed more information about risk policies and its practices than required by international regulators. However, apparently, it was not enough to avoid the downfall of the financial group.

Dobler (2005) argues that **Risk Reporting** “shall provide risk information that allows outsiders to assess the risks of an entity’s future economic performance”. Schrand & Elliott (1998) also summarized that for regulators “Risk Reporting refers to the information to assess the risks and uncertainties concerning a business enterprise’s future cash flows”. Furthermore, according to Dobler (2008), “this broad definition covers the disclosures on risk factors of all categories, risk management and risk forecasts”. Finally, Linsley & Shrives (2006) reported that “Risk reporting shall provide risk information that could be useful for investors to evaluate the risks of an entity’s future economic performance”.

As we previously said, “risk monitoring and management are the information source of risk reporting”, Solomon et al. (2000). However, sometimes companies may have really good risk management approaches and monitoring processes but insiders do not disclose all the information they own.

2.4.1. The importance of Sarbanes Oxley act

Due to the corporate failures and financial disasters that have been occurring over the past years, investors (mainly institutional investors) are nowadays more concerned about the performance of companies, their management strategies and policies, as well as the future possible events that might affect their financial situation. Therefore, corporate risk reporting subject has been receiving more attention.

In 2002, an important regulation was imposed by the US authorities, the **Sarbanes-Oxley act**. It was created to “protect investors by improving the accuracy and reliability of corporate

disclosures made pursuant to the securities laws, and for other purposes” Sabarnes & Oxley (2002). Furthermore, this Act was originated by a need to prevent similar future corporate failures like the downfall of Enron Corporation. Consequently, mechanisms and several rules were created to control and supervise the operating activities of the companies in order to mitigate the businesses’ risks and avoid the occurrence of frauds. Thus, the benefits were quite clear to everyone and specifically for companies: this Act would make companies increase their levels of risk disclosure and consequently improve the level of transparency among businesses. This improved the relationship between external investors and companies because “most investors believe companies that meet higher disclosure standards have greater value; thus investors are more likely to invest in the issuer”, Mclean (2006).

The Sarbanes-Oxley Act discussed around the world with many countries adapting some of its rules in order to standardize and allow their markets to be more regulated and protected from possible frauds. Those ideas were supported by Pistor (2014), who argued that “the vehicle for building the legal architecture for global markets is the harmonization of law around the globe by way of developing legal standards”. With these measures it would be possible to improve the institutional environments in many markets improving the levels of transparency and confidence.

In Europe, this Act had an indirect influence because there were many barriers and conflicts between the rules purposed by that act and the legislation of the European countries. Nevertheless, most of the changes had an impact in the relationships that companies had with their auditors. Besides, auditors “had to give up their numerous consulting, advisor and other services”, Hellwig (2006).

Therefore, the Sabarnes-Oxley Act might be considered as the vehicle to improve businesses’ activities in terms of transparency.

2.4.2. Mandatory and Voluntary Disclosure

Throughout the years, **compulsory risk disclosure** has been revised by the regulators and authorities. They have increasingly required more information about risks from companies in order to protect them from corporate’s future uncertainties. However, the information disclosed might not be sufficient for investors. External users are concerned about the information that insiders do not disclose and that could influence their process of decision making. On the other hand, the corporate failures that have been occurring in our society have caused a high level of mistrust on the investors’ side. Hence, nowadays they demand more

information than previously in order to mitigate and avoid some possible and unexpected impacts on their investee companies. For that reason, companies have been disclosing more information in order to satisfy their stakeholders (voluntary disclosure).

Firstly, it is important to highlight the main differences between Mandatory Risk disclosure and voluntary risk disclosure. **Mandatory Risk Disclosure** is related with the several laws and reporting rules that are imposed by the regulators. Therefore, this influences companies as they have to disclose more information nowadays than in the past. On the other hand, **Voluntary Risk Disclosure** means that “companies disclose information voluntarily for the sake of companies’ image, investors, and accusation risks avoidance”, Tian & Chen (2009). Furthermore, they continue arguing that “voluntary disclosure appears after compulsory information disclosure. In a sense, voluntary disclosure is the extension and complement of compulsory information disclosure system”.

Regarding these two concepts, Gigler & Hemmer (1998) concluded that:

- “Requiring more frequent mandatory reporting can therefore actually result in less timely information to the capital market because increasing the frequency of mandatory reports can destroy the incentives for voluntary disclosure”
- If mandatory risk disclosure has not good quality, managers “obtain private information that is of superior quality to subsequent public signals”.

The next chapter provides information about the incentives and impacts that investors face when they are in the process of disclosing information (as we have mentioned previously). We have mainly focused on the voluntary disclosure because there are many impacts and reasons that make that subject more important in terms of analysis.

2.4.3. Incentives and Effects of Voluntary Risk disclosure

Before briefly explaining the thoughts behind the incentives when insiders disclose information, it is fundamental to discuss a concept that is deep-rooted in businesses: the **asymmetry of information**. This concept is related with the amount of information that flows usually between companies and external investors. It means that some agents will send some information to others but, at the same time, they will hold some important information which is called privileged information. Many regulators have tried to fight against this problem that is predominant in the business world. They have set more reporting rules in order to reduce this asymmetry of information between managers and stakeholders. Hill & Short (2009) explained, if a firm increases the risks disclosure, they will reduce the asymmetry of

information between insiders and outsiders (and also reduce the cost of capital). Moreover, this reduction of **information asymmetry** has an impact in economic terms because it leads to lower monitoring costs between the agents and the principals, Jensen & Meckling (1976). Consequently, with a higher level of **transparency**, the external investors will easier interpreting the risks of the company, Cabedo & Tirado (2004). On the other hand, risk disclosure may decrease agency costs by minimizing the managers' capacity to adjust and manage the disclosure of data, Marshall & Weetman (2002).

On the **capital market** side, Healy & Palepu (2001) argued that disclosures are an important factor to reach market efficiency because they reduce estimation risk. Hence, this reduces the probability of having unexpected events and increases market liquidity. Furthermore, Solomon et al. (2000) have also studied the demand from institutional investors and they found that demand was strong for increased corporate risk disclosure and it improves portfolio-investment decisions.

Apparently, managers are willing to disclose risk information when outsiders are aware about possible inside information. Hence, they “discount the quality of goods insiders deal with the lowest possible value consistent with their discretionary disclosure”, Jung & Kwon (1988). On the other hand, sometimes that relationship may almost be the inverse, as investors may think that a manager holds adverse information and he is not disclosing anything or even he is not informed. This uncertainty on investors' side leads to a partial disclosure, Jung & Kwon (1988).

2.4.4. Quality of Risk Reporting

Throughout the years many authors have been discussed this topic by searching for the best measure to assess the quality of Risk Reporting on the companies' annual reports. Moreover, most of the researchers have been using similar tools in the assessment of information's quality which may symbolizes the convergence of this topic in a specific measure.

It is important to understand what “**quality of information disclosed**” means because it might be a subjective topic (opinions may depend on different investors' perceptions and needs). Beretta & Bozzolan (2004) argued that the quality of information is related with the amount of information disclosed and the richness of it. On the other hand the International Accounting Standards Board identified primarily the **relevance** and **faithful** representation as fundamental qualitative characteristics of useful financial information. Furthermore, in order to enhance the usefulness of information, they have defined four qualitative characteristics of

information that may have impact in the assessment made by decision's maker: **understandability**, **relevance** **reliability** and **comparability** (see at the appendix 2). However, Botosan (2004) argued that those characteristics cannot define the quality of risk disclosure because of the subjectivity that is inherent to those concepts. Regarding the concept of "understandability", this author warns to the question of knowing to which **type of users** is the information disclosed. He argues that," high risk quality disclosure may be driven to sophisticated users. But in contrast, that information might be focused to less sophisticated investors". Therefore, Botosan (2004) continues to argue that "different perspectives regarding the target group may lead to difference in instruments".

According to Abraham & Cox (2007), the quantity of risk disclosure (number of words) may be considered a proxy of the quality of risk disclosure. Some authors such as Beattie et al. (2004) have also deeply studied that topic deeper and they have computed the quantity and coverage (measure the extension of corporate disclosures across risk topics) in order to come up with their quality risk disclosure index. Furthermore, Beretta & Bozzolan (2004) and Beretta & Bozzolan (2006) also added to the previous indicators the semantic properties of risk disclosure (how and what is disclosed on annual reports).

To sum up, as we may conclude there are still some questions about the quality of Risk Reported by companies due to the perceptions, concerns and expectations of the external investors. Although assessment measures have been converged in one direction, there is still a long way to go in order to improve and develop more tools that would help external investors to make decisions!

2.5. The internationalization process

The topic of internationalization has been receiving significant attention by managers of companies in the recent period. Nowadays, it is not possible for companies to operate only in their home-based market. Due to the world's globalization most of the countries have opened their "doors" in order to improve their economies, create jobs within the society, improve their quality of life etc. The barriers to enter in a new country are now much lower than some years ago. This allows companies to easily move abroad and obtain economies of scale, improve their economic performance and increase their size and brand awareness (through the increase of the number of customers and the decrease of production costs by building factories overseas in order to improve their business margins). Due to the reduced growth opportunities in some markets companies expanded to other countries such as the under-

developed countries where external investment is welcome. For instance, we have seen many construction companies moving to markets such as Angola, Colombia, Peru, Venezuela because those countries do not have adequate local companies.

Therefore, this topic of internationalization may be considered a highly discussed topic as more and more companies are trying to go abroad (also start-up companies are looking at international markets since the beginning of their activity). According to Barnes (2008), the **internationalization process** is an interconnection of some factors such as the "intensification of international business relations", the "growth of multinational corporations", the "internationalization of markets", the "introduction of new technologies" and an "increase in the mobility of people". On the other hand, Welch & Luostarinen (1988) defined internationalization as "a process of increasing involvement in international operations".

To operate beyond their national boundaries, companies need to restructure their businesses and also employees' mentalities. Moreover, they should create the appropriate tools and mechanisms in order to identify, anticipate and manage future events in the new markets. To prevent uncertainties, managers need to allocate resources to Risk management. However there are still several constraints faced by companies. Beck & Demircuc-Kunt (2006) found that "small firms face larger growth constraints and have less access to formal sources of external finance, potentially explaining the lack of SMEs' contribution to growth". Those authors also discussed the importance of specific financing tools "such as leasing and factoring can be useful in facilitating greater access to finance even in the absence of well-developed institutions, as can systems of credit information sharing and a more competitive banking structure".

On the other hand, institutional investors have been diversifying their investments across the world. Therefore, this topic about Risk as we will explain in the next chapter has become particularly important not only for the company that needs to evaluate the market but also for the investors that need information to support their investment decision making.

2.5.1. Risks and uncertainties in International Entrepreneurship

This section will be focusing on the risks that might affect the performance of firms when they become international. The international risks might be a crucial factor when a company is selecting alternative countries choosing between foreign direct investment (higher direct risks) or a licensing strategy (lower risks because the company is less exposed). So, as we

have mentioned before, it is really necessary nowadays to create tools in order to predict and mitigate some possible future risks.

In this context of internationalization, it is possible to identify predominant risks. According Eiteman et al. (2009), “internationalization exposes firms to higher risks such as political risks (as we have defined previously) and refinancing risks, which are likely to lead to higher credit risks.

However, the **political risks** might be considered a source of opportunities. “The higher exposure of regulated industries to political risk makes them not only more aware of the possible threats but also incentivizes them to take proactive actions to take advantage of the situation such as developing and nurturing links with political actors to enhance their corporate political ties”, Sun et al. (2011). Furthermore, companies often prefer to have advantageous positions when negotiating the entry conditions in the market, Vernon (1971). So, in turbulent environments, where constraints are imposed by governments, companies are willing to spend “more time creating political capabilities and developing their learning experience curve” based on past experiences from others markets. This strategy might allow them to “prevent possible future risks and also to dialogue more effectively with governments”, Zollo & Winter (2002).

Chapter 3. Methodology

3.1. Dissertation Research Methods

This dissertation used two different methodologies to assess the corporate Risk Reporting. The first method was focused on the evaluation of possible significant relationships between the dependent variable and independent variables (further explained in this chapter). The second methodology was focused on online survey answered by managers of PSI-20 companies Index in order extract solid conclusions about future trends and factors that they consider important regarding this topic of Risk Reporting.

3.1.1. Data Sources – Annual Reports

The first part of this dissertation was to develop an assessment about the quality of risk disclosure that has been done by PSI-20 companies' index. We collected the data to be analyzed from companies' annual reports, an influential source of information because of its wide coverage and availability. The study **sample** consisted in 24 companies and the observations were pooled in 5 years across 2005 and 2013 thus, there were **approximately 120 firm-year observations** in the final sample. Our objective was to create a wide time-frame having some important events that may have impact on the corporate risk disclosure policies. We have excluded from our analysis “Soares da Costa” company because the information available was not enough to perform an accurate analysis. We also have excluded from our analysis “Sonaecom” because it was a subsidiary of Sonae SGPS (parent company) which could have brought some “correlation problems or bias problems”. We also took into account the problems with little available information and the merger of this company with “Zon” in 2013 (originated a new company on the telecommunications industry called “Nos”) for the exclusion of this company from our empirical study. Consequently, we did not consider any data for the last year of our time-frame (2013) from “Zon” company because the year annual report was already disclosed after that merger. Moreover, we also did not find the information for the first year of our time-frame (2005) and thus, we did not consider data from that company on our empirical study.

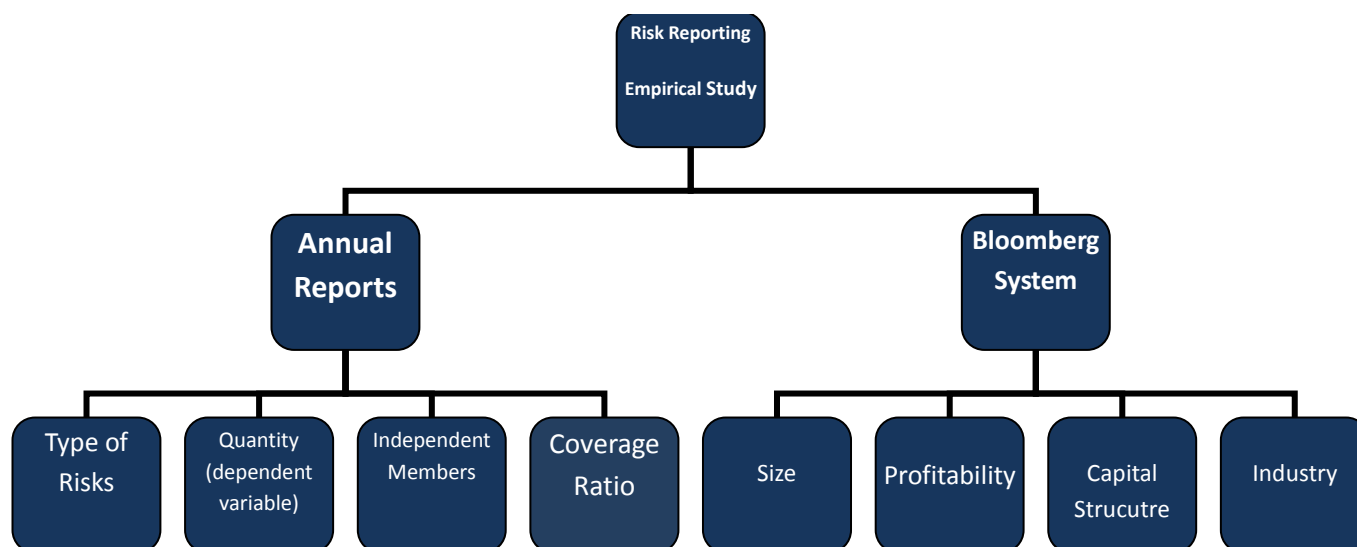
The Annual reports of PSI-20 companies' Index were a strong support to extract the data that is further detailed in this dissertation (see figure 1) namely:

1. The **type of Risks** that are disclosed on the annual reports for every company
2. The **dependent variable** composed by the Quantity of Risk Information

3. Some of the **independent variables** constituted by the number of independent members of the Board Administrations and the Coverage Ratio.

On the other side, the Bloomberg system was also important in order to include more independent variables that could have significant relationship with our dependent variable namely Size, profitability and capital structure and industry.

Figure 1 Methodology used in the empirical study



Initially, a deep analysis of academic papers and articles was conducted to get a better understanding of what has been done by researchers about each topic covered and the existing relationships between them. Therefore, this empirical study had as support empirical studies that were previously made by some authors that are cited in the bibliography of this dissertation such as Miihkinen (2012) and Beretta & Bozzolan (2004). These studies were extremely important for the definition of our variables and hypothesis tested.

The relationships were analyzed by using the **OLS regression**, **Fixed Effect** and **Random Effects** models (the last two models are only provided in appendixes) with the support of the **Stata program** in order to estimate the unknown effect of changing one variable over another.

3.2. Variables, Hypothesis and Regression Models

In this topic we will define the dependent and independent variables as well as the hypothesis that we would like to test (in line with previous years but applied to different markets and time-frames).

3.2.1. Dependent Variable

3.2.1.1. *Quality of Risk Information*

Previous literature reports various disclosure-measurement frameworks to capture the differences in the quality of financial reporting. In fact, it is difficult to analyze the accounting narratives without researcher's subjective assessment. Some literature has been emphasizing the **number of words** disclosed about risks (quantity) can be used a sound proxy of empirical quality indicator. Miihkinen (2012) and Beretta & Bozzolan (2004) argued that “semantic properties of disclosures about future prospects, that is, the richness—determines whether or not the information helps outside investors appreciate the expected impact of disclosed risks on the firms' capability to create value”

In line with those authors, our dependent variable is as follows:

3.2.2. Independent variables

1. *Coverage*

This variable measures the coverage of the risk information provided on annual reports, Beattie et al. (2004). Also Miihkinen (2012) argue that “investors need a balanced description of the major risks of the firm in order to understand a firm's value”. Therefore, this indicator is related with the extension that risks are normally disclosed on corporate annual reports.

To evaluate this variable we use as support the **Herfindahl index** to measure concentration of corporate disclosures across risk topics. Moreover, on the appendixes of this dissertation we provide in appendix 4 detailed about the the coverage ratio from 2005 until 2013 implicit on the corporate annual reports. The formula for this indicator is as follows:

$$\text{Coverage} = \left[\frac{\frac{1}{H}}{\text{number of main risk topics}} \right]$$

Where, H represents Herfindahl measure of concentration across risk topics calculated as $H =$

$\sum p_i^2$, where p_i is the proportion of risk disclosure words on topic I (adopt a value between 0 and 1). The inverse of H will be used to make a greater Herfindahl index value reflect more extensive disclosure coverage. This value has been scaled by dividing it with the number main risk topics, in our case 9 major risks.

For this variable we have followed a path through the annual reports of PSI-20 companies Index in order to compute the Coverage ratios:

1. Identify Risk information and consequently, allocate it to a specific main risk topic.
2. Count **all the words** (excluding tables) within each main risk topic.
3. With the sum of all words, we came up with the quantity of words, based on the first formula (quantity indicator).
4. Computation of which led to our Herfidahl Index
5. The inverse of Herfidahl Index
6. The inverse of Herfidahl Index scaled by dividing for **the number of main risk topics (9)**.

Example:

The risk information provided by a firm A in its 2013 annual report can be divided across main risk topics as follows:

| Main Risk topics | Total number of words = 932 |
|---------------------------------|--|
| Financial Risks: 415 words | Herfindahl Index = H = $\left(\frac{415}{932}\right)^2 + \left(\frac{398}{932}\right)^2 + \left(\frac{51}{932}\right)^2 + \left(\frac{68}{932}\right)^2 + \left(\frac{0}{932}\right)^2 + \left(\frac{0}{932}\right)^2 + \left(\frac{0}{932}\right)^2 + \left(\frac{0}{932}\right)^2 = 0.389$ Coverage Ratio = (1/0.389)/9 = 0.51 |
| Market Risks: 398 words | |
| Regulatory Risks: 51 words | |
| Operational Risks: 68 words | |
| Reputational Risks: 0 words | |
| Socio & Economic Risks: 0 words | |
| HR Risks: 0 words | |
| Environmental Risks: 0 words | |
| Supply chain Risks: 0 words | |

As we defined initially in the beginning of this dissertation, we aim analyze possible relationships between variables. Therefore, the Coverage ratio was considered our first independent variable and consequently, we created the follows hypothesis:

Hypothesis 1: There is a positive significant relationship between the Coverage and Quality of Risk information.

2. Size of the company

According to Jensen & Meckling (1976) the companies that have a significant dimension usually need more capital to finance their investments. Therefore, they disclose voluntarily more information in order to obtain the required capital normally from intermediary institutions (banks).

On the other hand, political costs may have a huge impact in large firms due its size, power and role in the society, Watts (1990). Moreover, it is expected that multinational corporations have to deal frequently with this kind of risk because they operate in different locals. Hence, companies create mechanisms to analyze, manage and eventually disclose more about that specific risk. Furthermore, those mechanisms created may allow them to negotiate better with host governments.

Although Beretta & Bozzolan (2004) did not find any relationship between size and the risk communication disclosure, our study is aligned after empirical studies made by Ahmed (1999); Robb et al. (2001); Linsley & Shrives (2006) and Foster (1982) who found a significant relationship between the size of the company and the disclosure of risk information. Therefore, this represents our **2nd hypothesis** that is further tested on the next chapter.

To test the second hypothesis, *Total Assets* and the *Market Capitalization* have been selected to measure companies' size.

3. Profitability

Different profitability measures were used to study the relationship between the profitability of firms and the corporate risk communication. However, most of the studies converged in the same direction.

Singhvi & Desai(1971) argued the Rate of Return¹ (considered as a measure of good management) and Earnings margin as a measure of firms profitability. For the first metric, they support “when the rate of return is high in a corporation, the management may disclose detailed information in order to support the continuance of its positions and compensations. On the other hand, when the rate of return is low, the management may disclose less information in order to cover up the reasons for losses or declining profits”. Regarding the Earnings Margin (the corporation's capacity of absorbing rising costs) the previous authors

¹ Rate of Return is defined as a ratio of net profit to net worth.

also considered that the risk communication of a firm may be influenced by the average earnings margins of the industry. Moreover, disclosing more information would be a signal of their superior performance. They argue “the corporation may disclose more information when its earnings margin is above the average of the industry because it is not afraid of being squeezed out in the price competition and also it wants to assure its stockholders about the corporation’s strong position to survive”.

In our empirical study we tested our **3rd hypothesis** for the possibility of having a positive and significant correlation between the profitability of a firm and its risk communication. Our assumptions follow the ideas mentioned above regarding the fact that companies normally like to show their results and grab the opportunity to become apparently more transparent to the markets. Two indicators, **Return on Assets** (how efficient is the management team using assets to generate income) and **Profit Margin** (how much in every dollar of sales a company has earnings) have been selected in order to represent the profitability measure in this study.

4. Capital Structure

In this empirical studied we followed the conclusions reached by Ahmed (1999) who supported the results of having a significant correlation between the capital structure and the quality of risk disclosed. Those results were also tested in this dissertation establishing our **4th hypothesis**. The author argued that “firms with higher debt finance have more managerial discretion to shift resources away from debt-holders, thereby increasing agency costs. Fixed interest security holders appoint trustees to protect their interests, often with monitoring devices such as use of debt covenants. This generally requires corporations to disclose more information”. Moreover, he also highlights a possible influence of firm’s risk communication on the cost of capital by arguing that “companies committed to the issue of debt, are motivated to reduce or maintain their present cost of capital. Further they are motivated to ensure that debt is capable of being “rolled over” by receptive investors when due. As a consequence of these self-interests, companies will err on the side of disclosing more, rather than less information, in order to decrease investor uncertainty”.

As a measure of the capital structure, we selected the **debt to Total Assets** in order to be considered in this empirical study.

$$\% \text{ Capital Structure} = \frac{\text{Liabilities}}{\text{Liabilities} + \text{Equity}}$$

5. Number of Independent Administrators

After the Sarbanes-Oxley act and the consequent changes of Reporting standards and suggestions made by CMVM²³ in Portugal, companies have included on their Board of administration more non-executive administrators (considered in most of the cases as independent members⁴) in order to scan and monitor the executive members, avoiding financial scandals and corporate misrepresentation. Moreover, this change led companies to improve their transparency and increase the confidence of external stakeholders.

Our assumptions are in line with the results found by Baek et al. (2009) who argued that “firms with high percentage of outside directors are more likely to disclose board and management processes, but no other type of discretionary information”. Moreover, a study conducted by Cheng & Courtenay (2006) also reached the point arguing that voluntary disclosure is higher in firms with majority of Board’s Administration being constituted by independent members than firms with balanced boards.

From these conclusions we tested our **5th hypothesis** of having a positive correlation between the number of independent members on the Board of Directors and the firm’s risk communication.

In this dissertation we have taken into account that the percentage of independent members would be constituted by the following formula:

$$\text{Percentage of Independent Members} = \frac{\text{Number of independent Members}}{\text{Total members of Board's Administration}}$$

² Comissão de Mercados dos Valores Imobiliários

³ In 2007, the “Comissão de Mercados dos Valores Imobiliários” made some suggestions about this topic namely:

- The Board Administration must include a number of non-executive executive members that guarantee the supervision, inspection and evaluation of activity of the board’s executive members.
- The list of non-executive members must include also an adequate number of independent administrators taking into account the size and the ownership structure of the company, which cannot be in any case inferior of ¼ of the total administrators.

⁴ We assumed that to be considered an independent Administrator, he has no commercial and familiar relations with the corporation, with the shareholder that owns the control or even with the board administrators avoiding possible conflict of interests susceptible of damage their evaluation.

Where the “Total members of Board’s administration” were composed by the auditors, the Executive Committee and non-executive administrators (either dependent or independent members of the firm).

6. Type of Industry

The type of industry may influence the corporate risk communication and their relations with the markets. The Risk disclosure may vary according to the characteristics of the industry namely the exposure that a specific industry hold in local and international markets, the value generated from businesses’ activities, the regulation and also the type of customers.

To create groups of companies according to their industries, we made some important assumptions that are necessary to highlight. We pooled the companies into three main groups, the “Financial industry”, “Construction industry” and “Others”. We assumed that in the banking sector (where there is a highly regulated activity) banks have to comply with rules established by authorities so, it is expected that the quality of risk reporting in this sector is much higher. On the other hand, we created a group for the “Construction Industry” because companies’ activity within this industry are linked with the country’s GDP and it may considered, in business terms, that they are exposed to the cyclicity of this industry. Hence, we tried to export these assumptions into our analysis by defining our **6th hypothesis** in our empirical study. We tested the possibility of firms within a certain industry are disclosing more information than others from a different industry.

The allocation of each company to these three industries was made by the definition of Dummies that assume 0 or 1, when a company is related or not to a specific industry.

7. Event

During the time-frame of our empirical study, between 2005 and 2013, reporting regulation faced several significant changes that had impact on corporate annual reports mainly, on the quality of risk communication.

The issue of **Basel II** in 2004 had impact in our empirical analysis because its **effectiveness** was only in **2007**. One year later, in 2005, the International Financial Reporting Standards entity issued one of the most important standards for companies that used to have financial instruments on their operations, the **IFRS 7** “Financial Instruments: Disclosures”. Therefore, companies must identify and communicate the nature and extent of risks that might arise from those operations either in quantitative or qualitative terms. However, the **effectiveness** IFRS 7 was also in **2007** which allowed firms to have time to change their reporting policies in an

accurate and properly manner in order to fit the standards and requirements created by European Central Bank and IFRS. Consequently, our dummy “**Year 2007**” included in our study these two main events.

Years later the world faced one of the biggest crises that have ever happened in history. The “**subprime mortgage**” crisis in 2006 was mainly related with some banks in U.S that granted loans with no guarantees of returns. Moreover, they granted several loans without supervising carefully the liquidity ratios, credit risks ratios etc. Hence, this crisis was so important that **Basel III** was launched in **2010** by G20 and the Financial Stability Board in order to create new rules and more regulation for the banking industry to avoid further crisis. Therefore, our dummies variables “**Year 2009**” and “**Year 2011**” represented the financial crisis and the regulation imposed on banking industry, respectively. Finally the last dummy variable “**Year 2013**” also includes yet the impact of the financial crisis and represented also the last year of our period analysis.

Therefore, we followed the same path as Miihkinen (2012) who considered that those events are sufficiently strong to influence the quality of risk communication. Consequently, from that finding we created our **7th hypothesis** for our empirical study considering that a specific event influences the risk communication of a firm by improving its levels and standards.

Chapter 4. Characterization of the Sample – Content Analysis

4.1. Annual Reports – Descriptive Statistics

The following table shows all variables either dependent or independent that characterizes our sample such as the number of observations, an average, standard-deviation, minimum and maximum number.

Table 1 Descriptive Statistics from the Sample

| # | Variable | Observation | Mean | Std. Dev. | Min | Max |
|-----------------------------|---|-------------|----------|-----------|--------|----------|
| Quality of risk information | <u>Dependent Variable</u> | | | | | |
| | Quantity log(# of words) | 118** | 7.2 | 2.2 | 0.0 | 9.5 |
| | <u>Independent Variables</u> | | | | | |
| | 1. Coverage (1/H)/(# of main risk topics) | 118** | 18.6% | 10.6% | 0.0% | 51.8% |
| Profitability | 2. Return on Assets (%) | 115* | 2.7 | 3.8 | -19.9 | 14.1 |
| | 2. Profit Margin (%) | 117* | 4.2 | 27.7 | -186.1 | 53.2 |
| Size | 3. Total Assets (Millions) | 119* | 13,170.4 | 23,118.3 | 82.5 | 95,550.4 |
| | 3. Market Capitalization (Millions) | 117* | 2,477.5 | 3,365.6 | 10.4 | 16,344.7 |
| Capital Structure | 4. Liabilities/(Equity + L) | 117* | 74.5% | 14.9% | 39.6% | 98.3% |
| Board's structure | 5. Number of Independent Members (%) | 118** | 46.1% | 12.9% | 20.0% | 85.7% |
| Type of Industry | 6. Financial Industry | 120 | 0.2 | 0.4 | 0.0 | 1.0 |
| | 6. Construction Industry | 120 | 0.1 | 0.3 | 0.0 | 1.0 |
| Events | 7. Dummy - Year 2007 | 120 | 0.2 | 0.4 | 0.0 | 1.0 |
| | 7. Dummy - Year 2009 | 120 | 0.2 | 0.4 | 0.0 | 1.0 |
| | 7. Dummy - Year 2011 | 120 | 0.2 | 0.4 | 0.0 | 1.0 |
| | 7. Dummy - Year 2013 | 120 | 0.2 | 0.4 | 0.0 | 1.0 |

ⁱ* The values differ from 120 observations because the data was not available from bloomberg system.

** The values differ from 120 observations because data was not available on the annual reports.

Regarding the **coverage ratio**, the average of 18,6% may represent a low value for the extension of risk communication that has been adopted by the companies. It reflects that the companies are limiting their disclosures about risk to the main risks topics. Hence, many companies are still focused on the main risks (financial and market risks) without providing much information about other risks. It was possible to identify, a group of companies that are

adopting new trends and strategies for their financial reporting by disclosing additional information about other main risk topics. The maximum value of this indicator (51,8%) is significant and represents good extension of risks communication made by a specific company in a specific period of time in our time-frame.

Analyzing the **profitability indicators** of our empirical study, we may highlight the significant minimum and maximum values for both indicators (extremely negative or positive values). This huge variation may be influence by the mortgage crisis in 2007 which affected the companies' profits. The positive average might show positive profits from companies before crisis and some years later after that event (recovering period). Finally, the standard deviation of profit's margin with a value of 27,7% represents the differences in margins among companies. The reason for this significant value may be arise as we discussed above, by the specific characteristics that are implicit on the different industries.

On the other hand, according to this table, we can conclude that the companies that are included in our sample operate in different industries. In our sample, companies had an average of their **total assets** 13,170.4 million. However, the standard deviation is really high (23,118.3), which represents what we have explained previously, about the different characteristics of each industry.

The **percentage of liabilities** has an important role on the companies' financing because on average it represents 74,5% percent of the capital structure of the companies that are included in our sample. Also, banks have high debt ratios and consequently, those ratios influence the average of our sample. Moreover, we can see that the standard deviation of 14,9% is not so high because probable companies are always trying to reach their optimal leverage level in order to take some possible advantages as for instance, taxes shields.

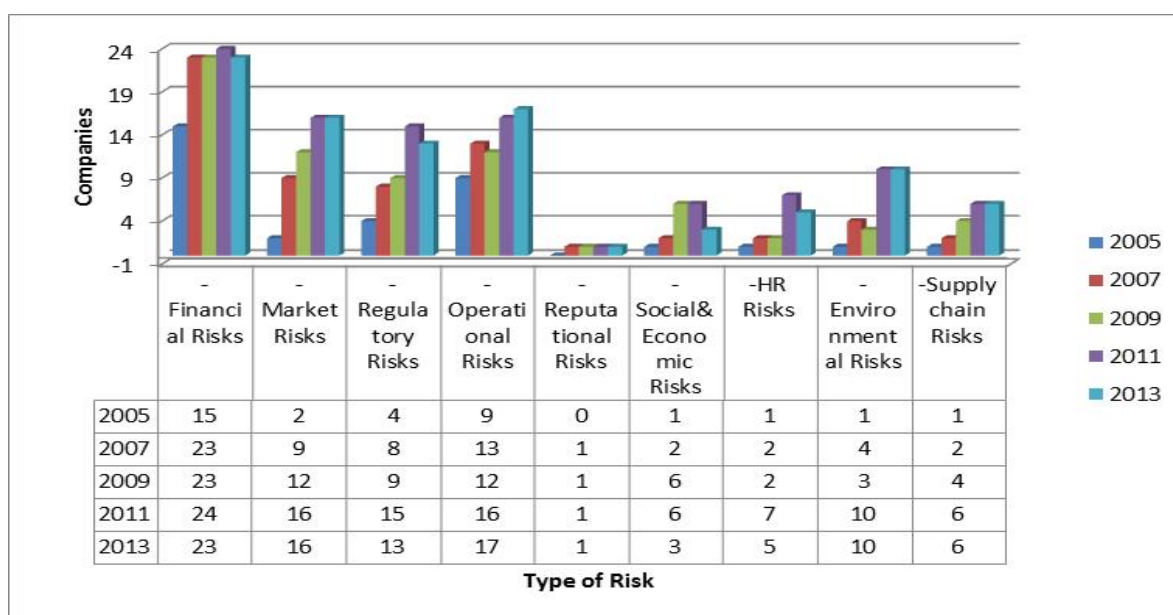
Similarly, also the **percentage of independent members** on the Boards of administration (average) has currently a significant importance on the companies operating activities. On average, approximately 47% of the administrators are independent members representing almost half of the Boards of administration. Also the standard deviation is not so high thus, most of the companies have followed this trend and requirements imposed by CMVM during our period analysis.

Finally, the previous table, does not include the third industry represented by "Others" and also the "Dummy – Year 2005" because in statistics we only compute de OLS Regression with n-1 dummies.

4.2 Type of Risks Reported

On the literature review of this dissertation, we mentioned a set of risks that would be analyzed on the annual corporate reports of our sample. Consequently in our empirical analysis we provide on the next chart, an overview about the risks disclosed and their evolution during our time-frame on the annual reports of PSI-20 companies' Index.

Chart 1– Type of Risks disclosed (Evolution)



- 1) Firstly, from the chart above we have to highlight significant conclusions regarding the risks' communication that have been done by the companies of our sample. It is possible to conclude that **financial, market, regulatory, operational** risks are the most relevant risks reported. Contrary, reputational, social, HR, Environmental and Supply risks were attributed by managers, less importance in terms of disclosure. As we may see at the chart, financial risks were the most disclosed in our empirical study. During our time-frame, managers have allocated more resources over the years into financial risk disclosure because external investors became extremely concerned about the financial metrics of the companies. To provide information for the institutional investors' demand, companies improved their internal controls and mechanisms. This allocation of resources also represents a source of transparency and credibility within the market where the companies were operating.
- 2) The **type of industry** may partially justify the differences founded on the communication of main risk topics. Each industry has its own regulations, rules and standards that companies must comply. Therefore, it is expected that highly regulated

industry has a strong influence on the policies of companies in terms of Risk Reporting. Moreover, the number of companies that are in the industry may influence our sample. In this dissertation, the presence of banks has a significant impact on the results because the bank industry is extremely regulated and corporations have to comply with the requirements and rules imposed by Bank of Portugal and European Central Bank. Nevertheless, our conclusions still hold that the market, regulatory and operational risks were also highlighted on the corporate annual reports of the companies. Several companies went beyond their boundaries and nowadays, managers are more concerned about possible regulations and requirements imposed by host governments that may difficult their operations overseas. On the other hand, the operational risks have an important role within the firms as managers recognize the importance and the impact of their internal processes (such as production, distribution, marketing sales etc.) on the companies' performance in terms of value creation. Finally, regarding the market risks, they become important over the years because companies are concerned about the external factors that may influence their performance. Nowadays, companies also define their strategies taking into account the strategies of their competitors because the markets are more challenging and dynamic.

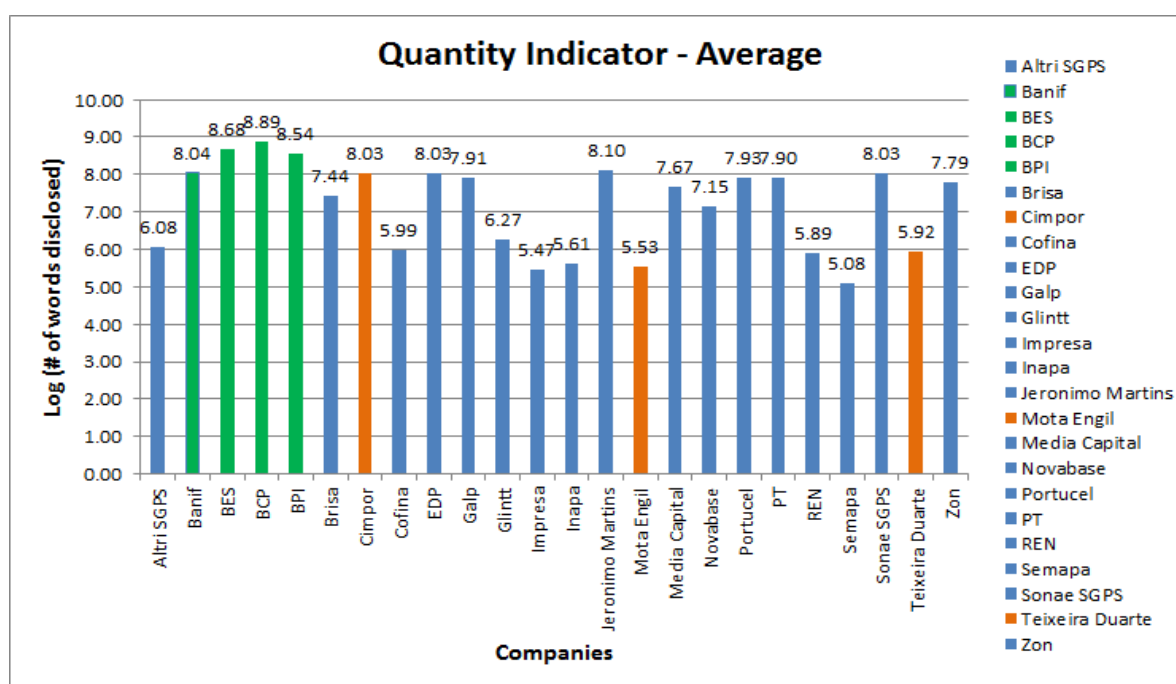
- 3) Analyzing the **remaining risks** founded on the annual reports, we may conclude that those risks did not receive as much attention as the ones' previously mentioned. From the chart, it is possible to conclude that companies did not focus on the **reputational risks**. However, in a society where the brand recognition and brand awareness are being more important on the customers mind, companies should allocate more resources to those areas and also disclose more information because those risks are directly related with the long-term sustainability of them.
- 4) An also important conclusion is that, in general companies have increased the communication of risks in their reports. This implies the acquisition of knowledge and the allocation of resources to other areas, in order to mitigate possible damages for corporations. For instance, we have to highlight that almost all companies of our sample since 2007 have disclosed information about financial risks. On the other hand, it is possible to see the risks that have received less attention in the past, are receiving more attention by managers over the years. This clearly discloses the trend for the future regarding the Risk Reporting of Portuguese companies.

4.3. Dependent Variable

4.3.1. Quantity

Measured by the logarithm of the number of words disclosed by each company, the following chart provides the values for our dependent variable, Quantity for each company during our period of analysis.

Chart 2 – Quantity Indicator Average



As we may see from this chart, there are many companies that exhibit a high level of disclosing information on their annual reports. We have to mention the fact that banks who are inserted in **banking industry** (represented by green label) are the ones that disclose more words about risk. We have already explained the reasons before mainly related with the high regulation and requirements within that industry that is always demanded more information either by external investors or authorities. Contrary with this result, we may conclude that most of the **construction** companies present a low level of risk disclosure namely Teixeira Duarte and Mota Engil. However in this industry, Cimpor group presents a high level of risk reporting probably because its ownership structure changed in the past (more international shareholders).

On the other, it is important to highlight the **level of disclosure** made by the big Portuguese companies. For instance, if we take a deep look on this chart it is possible to see that Cimpor,

EDP, GALP, Jerónimo Martins, Portucel; Portugal Telecom and SONAE are the companies (excluding banks) that disclosed also more information, in average, during our analysis period. Their level of risk communication may be influenced by factors such as the need from sophisticated investors (institutional investors, private investors), different type of shareholders, higher exposure in several markets, reputation and also regulation.

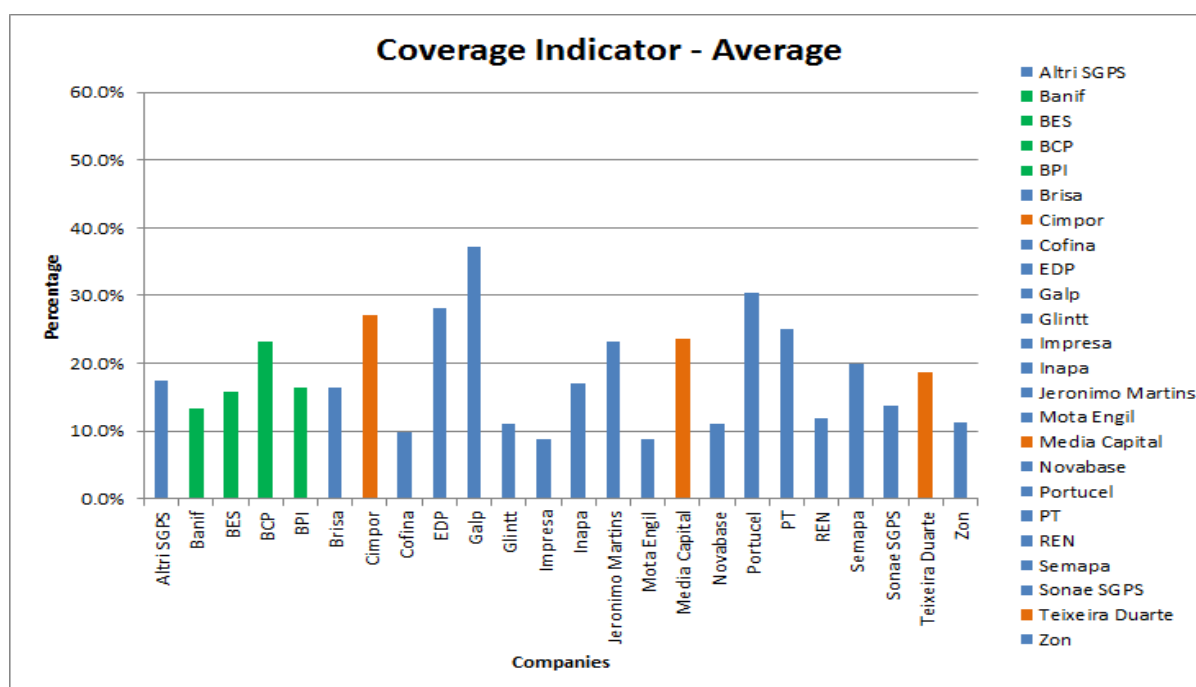
Finally, from the chart we also may conclude that Impresa, Mota –Engil, cofina, Semana and Inapa were the companies in our study that disclosed less information about the Risks probably because managers did not allocate enough resources to the areas of risk reporting during our analysis period.

4.4. Independent Variable

4.4.1. Coverage Ratio

In the following chart we provide the results about the **coverage ratio**: how extensive is the disclosure of information is and how focused were the companies regarding the communication of main risk topics:

Chart 3 – Coverage Indicator Average



- 1) There are some companies that still report and cover few main risk topics on their annual reports. It is possible to see that Cofina, Glinnt, Impresa, Mota Engil and Novabase, have the lowest extensive disclosure about risks. These companies during our period of analysis have disclosed information about few main risk topics which

makes the Herfindahl index (used to compute the Coverage factor) extremely high in terms of concentration of information. Moreover, the information reported by those companies was mainly financial risks which were the most common risk disclosed among the PSI-20 companies index.

- 2) It is possible to see from this chart that in general, **banks** do not extend their risk information to other main risk topics which leads to a **lower coverage ratio**. The reason may be related with the high regulation presented within this industry. Regulators, authorities and institutional shareholders are always demanding for new information about financial risks (credit risk, liquidity risks etc.). These may lead banks to concentrate on this main risk topic. However, it is important to highlight in this cluster of companies the coverage value obtained from **Millennium BCP Group**. This bank had the highest value in terms of quantity disclosed (# of words) and also the highest coverage ratio within the banking industry. This scenario represents a better distribution (comparing with the competitors) on the number of words disclosed among some main risk topics (more extensive).
- 3) Cimpor, EDP, GALP, Jerónimo Martins, Portucel; Portugal Telecom have good coverage ratio. Those companies during our time-frame disclosed several information about risks and according to this indicator the information provided was well distributed among those topics.
- 4) Finally the majority of the companies had a **high concentration** of their information available about some main risk topics. This means that most of the companies were more concerned about some specific risks such as financial risks, market risks or regulatory risks (even though they presented additional information about others). Therefore, more incentives and requirements should be created in order to lead these companies to present more information about different risk topics which may be equally important for investors.

4.5. Multivariate Statistics Analysis

In this chapter we examined the relationships between the dependent variable (quantity of information) and independent variables (coverage, ROA, Profit Margin, Market Capitalization, Capital Structure, Total Assets, Industry and Events). In order to analyze those relations we used **OLS Regression, Fixed Effects** and **Random Effects Models** methods that allowed us to test the hypothesis that we have defined in the chapter 3.

4.5.1. OLS Regression, Fixed and Random Effects Models

In this dissertation we used the linear multiple model to study the relationships between our dependent and independent variables. In our empirical study we computed our results with the “**Robust**” option (control heteroskedasticity which implied that if the model has its assumptions changed or violated, we could still perform our tests in an effective and accurate way).

The differences between these three methods are mainly related with the assumptions made by each model (see the models in appendixes 7). Although the **OLS regression** denies the heterogeneity or individuality that may exist among companies, is the most used for this type of empirical studies. **The Fixed Effect model** assumes that each company has its own individual characteristics that may or may not influence predictors’ variables. Finally, the **Random Effect model** supports the idea that the entity’s error term is not correlated with the predictors which allows for time-invariant variables to play a role as explanatory variables.

Contrary to the OLS regression, the results for the last two models are presented without the “robust” option otherwise we could not have computed the **Hausman Test**. This test is important because it explains which model (between fixed and random effect models) is the most appropriate for our analysis.

4.5.2. Person’s Correlations

The following table discloses the Pearson correlations between the variables. This method assesses the statistical dependence between two variables, implying a linear correlation between two variables.

Table 2 - Pearson's Correlation

| | Quantity | Coverage | R_Assets | Profit_M. | T_Assets | M_Cap | Capital_S. | Indep. M. | Ind_Financ. | Ind_Const. | Year07 | Year09 | Year11 | Year13 |
|-------------|----------|----------|----------|-----------|----------|-------|------------|-----------|-------------|------------|--------|--------|--------|--------|
| Quantity | 1.0 | | | | | | | | | | | | | |
| Coverage | 0.6 | 1.0 | | | | | | | | | | | | |
| R_Assets | -0.1 | 0.1 | 1.0 | | | | | | | | | | | |
| Profit_M. | -0.1 | 0.0 | 0.3 | 1.0 | | | | | | | | | | |
| T_Assets | 0.3 | 0.1 | -0.2 | 0.1 | 1.0 | | | | | | | | | |
| M_Cap | 0.3 | 0.4 | 0.3 | 0.1 | 0.4 | 1.0 | | | | | | | | |
| Capital_S. | 0.2 | -0.1 | -0.2 | -0.1 | 0.5 | 0.1 | 1.0 | | | | | | | |
| Indep. M. | -0.2 | -0.1 | 0.0 | 0.1 | -0.2 | -0.2 | -0.1 | 1.0 | | | | | | |
| Ind_Financ. | 0.3 | -0.1 | -0.3 | -0.1 | 0.8 | 0.1 | 0.6 | -0.4 | 1.0 | | | | | |
| Ind_Const. | -0.1 | 0.0 | 0.0 | 0.0 | -0.2 | -0.1 | 0.1 | 0.3 | -0.2 | 1.0 | | | | |
| Year07 | 0.0 | -0.1 | 0.2 | 0.2 | 0.0 | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 1.0 | | | |
| Year09 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | -0.3 | 1.0 | | |
| Year11 | 0.2 | 0.2 | -0.2 | -0.1 | 0.0 | -0.1 | 0.0 | -0.1 | 0.0 | 0.0 | -0.3 | -0.3 | 1.0 | |
| Year13 | 0.2 | 0.2 | 0.0 | -0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.3 | -0.3 | -0.3 | 1.0 |

We may conclude from Pearson correlation matrix that the variable that had the highest correlation with our dependent variable “Quantity” was the “Coverage” because it was also linked to the numbers of words disclosed on corporate annual reports. This also suggests that the firms that provide more risk information also discuss different main risk topics. On the other hand, most of the variables correlate positively with the dependent variable (when the “quantity” increases, an independent variable also increases).

4.5.3. The Results

4.5.3.1. The OLS Regression

Table 3 - OLS Regression

| | | |
|---------------|--------|---|
| Number of obs | 113 | From the table on the left we may extract important conclusions about the reliability of our model. The p-value (indicated as Prob > F) indicates the reliability of an independent |
| F(13, 100) | 6.34 | |
| Prob > F | 0.000 | |
| R-squared | 0.6064 | |
| Root MSE | 1.3628 | |

variables to predict the dependent variable. For a **significance level** of **5%** we may argue that is a significant relationship between the independent and the dependent variables. On the other hand, the table also provides the R-squared for this model that represents the amount of variance of the dependent variable that is explained by the independent variables. In this case, the model explains 60,64% of the variance of the Quantity variable. Finally the last indicator represents the standard deviation of the regression which, in this case, we may consider it low (the closer to zero, the better the fit). In appendix 8, it is possible to have a look to the results that we reached on Fixed Effects and Random Effects Models where may be concluded that those are also appropriate for our analysis because the p-values of the models are lower than 5% (level of significance). Regarding that indicator, for the three models we rejected the null hypothesis of being implicit here a situation whether all coefficients in the model are different from 0.

On the following table we provide the **OLS regression** values that are extremely important to understand which variables are significant for the quantity variable:

Table 4- OLS Regression (Robust)

| Quantity | Coef. | Std. Err. | t | P>t | [95% Conf. Interval] | |
|-----------------------|-------|-----------|------|-----|----------------------|------|
| Coverage | 7.8 | 1.9 | 4.1 | 0.0 | 4.1 | 11.6 |
| R_Assets | 0.0 | 0.0 | -0.2 | 0.8 | -0.1 | 0.1 |
| ProfitMargin | 0.0 | 0.0 | 1.0 | 0.3 | 0.0 | 0.0 |
| T_Assets | 0.0 | 0.0 | -0.7 | 0.5 | 0.0 | 0.0 |
| M_Cap | 0.0 | 0.0 | 1.4 | 0.2 | 0.0 | 0.0 |
| Capital_Struct | -0.6 | 0.8 | -0.7 | 0.5 | -2.2 | 1.0 |
| IndependentMembers | 0.5 | 1.5 | 0.3 | 0.8 | -2.5 | 3.4 |
| Financial Industry | 2.1 | 0.6 | 3.3 | 0.0 | 0.8 | 3.3 |
| Construction Industry | -0.2 | 0.5 | -0.4 | 0.7 | -1.1 | 0.7 |
| Year 2007 | 1.8 | 0.7 | 2.6 | 0.0 | 0.4 | 3.1 |
| Year 2009 | 2.2 | 0.6 | 3.9 | 0.0 | 1.1 | 3.4 |
| Year 2011 | 2.2 | 0.6 | 4.0 | 0.0 | 1.1 | 3.3 |
| Year 2013 | 2.3 | 0.6 | 4.1 | 0.0 | 1.2 | 3.4 |
| _cons | 3.9 | 1.0 | 3.8 | 0.0 | 1.9 | 5.9 |

To accept a variable as statistically significant, the p-value must be lower than 5% (for a 95% of confidence interval). Therefore, from the fifth column we may conclude that Coverage, the banking industry, and also the events represented by the years (the issue of IFRS 7, financial crisis, Basel II and Basel III) were statistically significant to explain the quantity variable. We may conclude also the profitability, size, capital structure and independent members were not significant for this study.

4.5.3.2 – Fixed and Random Effect Models

These two models reached similar conclusions as the OLS regression. The **appendixes 8 and 9** present a detailed analysis of the results obtained from these models. Moreover, the following table we compare the results from the three models (with **robust option**) regarding the significant influence that each variable has on the explanation of the dependent variable:

Table 5 – P-values from the different models

| | (1) | (2) | (3) | |
|----------------|-------------------|---------------|-------------------|--------------|
| | OLS Regression | Fixed Effects | Random Effects | Conclusions |
| Quantity | P> z | P> z | P> z | Significant? |
| Coverage | 0.0 | 0.0 | 0.0 | (1)(2)(3) |
| R_Assets | 0.8 | 0.2 | 0.3 | None |
| Profit Margin | 0.3 | 0.9 | 0.3 | None |
| T_Assets | 0.5 | 0.0 | 0.1 | (2) |
| M_Cap | 0.2 | 0.3 | 0.1 | None |
| Capital_Struct | 0.5 | 0.8 | 0.6 | None |
| Indep_Memb | 0.8 | 0.1 | 0.3 | None |
| Financial_Ind | 0.0 | | 0.0 | (1)(3) |
| Const_Ind | 0.7 | | 0.4 | None |
| Year2007 | 0.0 | 0.0 | 0.0 | (1)(2)(3) |
| Year2009 | 0.0 | 0.0 | 0.0 | (1)(2)(3) |
| Year2011 | 0.0 | 0.0 | 0.0 | (1)(2)(3) |
| Year2013 | 0.0 | 0.0 | 0.0 | (1)(2)(3) |

From the previous table we may conclude that the main difference between the three models is on the p-value of “Total Assets” which was considered relevant when using the fixed effect model.

We further have developed the **Hausman Test** (without the “robust” option) in order to choose between the Fixed and Random Effect the most appropriate model. With this test, we analyzed the null hypothesis of using the Random Effect model as the appropriate test (see in appendix 10). We concluded, for a significance level of 5%, that we should reject the null hypothesis of using the Random effect model. Therefore, the **Fixed effect model** is more **appropriate** than the Random Effect model.

Finally, we also developed the **Breusch and Pagan Test** in order to see if our OLS regression had heteroskedasticity in its process. This test was also important to conclude if the OLS regression would be the most accurate and appropriate test in our analysis (comparing with the Random effect model). The results are as follows:

Table 6 - Breusch and Pagan Test

| Estimated results: | | | |
|--------------------|-----|----------------|-----|
| | Var | sd = sqrt(Var) | |
| Quantity | | 4.2 | 2.0 |
| e | | 1.2 | 1.1 |
| u | | 0.6 | 0.8 |
| Test: Var(u) | = | | 0.0 |
| chibar2(01) = | | | 7.7 |
| Prob > chibar2 | = | | 0.0 |

According to the value obtained of 0.0 (for a significance level of 5%) we may conclude that we should not be using the OLS regression (assuming in study the presence heteroskedasticity in our empirical study). Consequently, we should adopt one of the other two models to provide the results in our final conclusions. Therefore, we provided the **conclusions** of this empirical study based on the results of the **Fixed Effect model** (with **robust option**).

$$\begin{aligned}
 \text{Quantity} = & 2.8_{bi} + 9.4 \text{ Coverage} - 0.1 \text{ Return on Assets} - 0.0002 \text{ Profit Margin} \\
 & - 0.0001 \text{ Total Assets} \\
 & + 0.00008 \text{ Market Capitalization} - 0.7 \text{ Capital Structure} \\
 & + 5.5 \text{ Independent Members} + 1.9 \text{ Dummy07} + 2.6 \text{ Dummy09} \\
 & + 2.7 \text{ Dummy11} + 2.6 \text{ Dummy 13} + e_{it}
 \end{aligned}$$

Chapter 5. Final Results about the Hypothesis

The following table provides the final results of the hypothesis from our empirical:

Table 7 - Results from Hypothesis

| Quantity | Fixed Effect Model | | | |
|------------|---|-----------------------|--------|--------|
| Hypothesis | Statement | Variable | P> z | Result |
| H1 | Positive and significant relationship | Coverage | 0.0060 | YES |
| H2 | Positive and significant relationship | Total Assets | 0.0140 | Yes |
| | | Market Capitalization | 0.2940 | NO |
| H3 | Positive and significant relationship | Return on Assets | 0.1580 | NO |
| | | Profit Margin | 0.8930 | NO |
| H4 | Significant Relationship | Capital Structure | 0.8470 | NO |
| H5 | Positive and significant relationship | Independent Members | 0.1140 | NO |
| H6 | Significant Relationship | Financial Industry | 0.0000 | |
| | | Construction Industry | 0.0000 | |
| H7 | Impact on the disclosure of information | Year 2007 | 0.0060 | YES |
| | | Year 2009 | 0.0000 | YES |
| | | Year 2011 | 0.0000 | YES |
| | | Year 2013 | 0.0000 | YES |

From the chart above it is possible to conclude that the **Coverage ratio**, the **Total Assets**, and **Events** (represented by years) have significant impact on our empirical study (according to their p-values exhibited).

Regarding the **Coverage Ratio** the value of 9.4 demonstrates an extremely positive correlation between this indicator and the quantity of information disclosed (if the coverage goes up by one, the quantity variable increases 9.4, in logarithm terms). This result is in accordance with Miihkinen (2012) who supported “if quantity and coverage are highly correlated, firms that provide more risk information also disclose several risk topics”.

The **Size of the companies** also had significant impact on our empirical studied as it is stated on the table. The significance value obtained on the **Total Assets** is aligned with previous studies developed by Linsley & Shrives (2006), Ahmed (1999) and Robb et al. (2001) who found positive and significant relationship between the size of firms and the quantity of risk disclosure. On the other hand, we have a look on the value of **Market Capitalization** variable, we may conclude that this indicator was not statistically significant for the explanation of our dependent variable. These results are also the same found by Beretta & Bozzolan (2004) who argued about no significant relation or influence of companies' size on quality of risk disclosure.

Analyzing the **profitability indicators** we may conclude that **Return on Assets** and **Profit Margin** are not statistically significant in explaining the dependent variable. Indeed, they had

high p-values (higher than 5%) in our empirical research which means in statistical terms, we do not reject the null hypothesis of the coefficients being different from zero. In conclusion, our results are different from Singhvi & Desai (1971) and somewhat in accordance with Ahmed (1999) who found mixed results in risk reporting influenced by profitability's indicators. In our case, we must reject the hypothesis 3 of having some relationship between profitability's indicators and the quantity factor.

In our analysis, when assessing the p-value of **the Capital Structure** variable we cannot accept our first hypothesis of a positive impact of the capital structure in our dependent variable (significance level is higher than 5%).

Regarding the **“Independent Members”** variable, we verify its positive coefficient of 5.5. However, this variable is not significant in our analysis when using the fixed effect model with the robust option. This may be conclude when assessing its p-value (higher than 5%) which highlights that the number of independent members is not statistically significant in explaining the quantity dependent variable. To sum up, our results are not aligned with Baek et al.(2009) and Cheng & Courtenay (2006) who argued that “higher proportion of independent directors on the board are associated with higher levels of voluntary disclosure”.

According to our results, we may verify that a **specific- industry** has influence on the disclosure of risk communication (if we consider analyzing the results from the OLS Regression). Furthermore we may see the effectiveness of that thought based on the p-values of the Financial Industry and Construction Industry (that were presented previously). However, we do not have results for this specific variable through the Fixed Effect model because this variable is considered a **time invariant variable**. Therefore, we could not include this variable anymore on our empirical research.

Finally, in our empirical study it is possible to conclude that **events** have a positive impact of the disclosure on information on annual reports. It is possible to see from the table above that all the years were statistically significant explaining our dependent variable due to their p-values being lower than 5%. For instance the **“Year 2007”** represents in our analysis the effectiveness of IFRS 7 or Basel II which led to a positive coefficient on the Fixed Effect Model. Also the **“Year 2009”** had already incorporated the financial crisis which also had an impact because regulators required more information after that event in order to improve companies' transparency. Moreover, for the **“Year 2011”** we took into account the issue of Basel III that imposed more regulation for banks (also had strong impact in our empirical

research). The “**Year 2013**” may represent the effectiveness of the Basel III. On the other hand, it still has implicit the consequences of the financial crisis. It is important to highlight these positive impacts were related with a change in mentalities by the external investors that are closer to their investee and also demanding more information. Therefore, our results are aligned with the assumption made by Miihkinen (2012) arguing a positive impact of a rule or an event on the risk communication of a firm.

Chapter 6. Survey analysis and Results

6.1. Data Sources – Survey

A questionnaire was designed to gather information from the managers’ perspective. The selected management representatives consisted of mainly Risk Managers and senior financial executives. These directors were involved in the preparation and presentation of information in corporate annual report. An initial list of questions that could provide results regarding the influence of some factors on managers’ disclosure decisions was developed. Besides, we also present the results about the risks faced by corporations on their operating activities (home and foreign market), the maturity levels of their Risk Management approaches and future trends of voluntary Risk Disclosure.

The final questionnaire was then sent by e-mail to the 24 companies. Of these, **18 questionnaires** were returned generating an **overall response rate of 75%**. In this topic, we have to highlight the importance of the financial problems that affected Banco Espírito Santo which also had impact on the collection of responses from managers. Therefore, we did not contact that corporation due to its financial downfall. On the other hand, although we tried to reach managers from Portugal Telecom, we did not receive a reply probably because the company was linked to case of Banco Espírito Santo. Finally, we tried to find a manager with a solid position from Soares da Costa Company. Unfortunately, it was not possible and therefore, we did not collect data from managers’ perspectives of that corporation

To contact those managers we had the support of the auditing companies (Deloitte Consultores S.A, Pricewaterhousecoopers & Associados, SROC LDA and KPMG Portugal) of those companies in that period (between 2005 and 2013). They have created a “bridge connection” between us and them which was crucial in this process.

6.2. Main Risks

In this section we aim to provide some conclusions from the managers' perspectives of PSI-20 companies' Index about the topics of Risk Reporting, Risk Management and Risk of Internationalization. Analyzing the responses gathered from companies' managers there are some conclusions that we have to discuss within this section.

Regarding the risks that were considered important by managers both in the home and in the host market, it is possible (see appendix 3, question 14 and 15 and appendix 11) to conclude that the Financial, Market, Regulatory, Reputational Risks were the most relevant risks pointed by them.

In the **home-based market** those risks were also important in order keep their reputation and also comply with the rules imposed by the Portuguese government. Moreover, financial risks (related with current economic context of the country, rating and policies adopted by banks) and Market Risks (because there is more competition than emergent markets) had an important role on managers' perspectives. These results are aligned with the results from our empirical studying emphasizing that financial, market and regulatory were extremely important on the businesses' daily basis of the companies. However, an important and different result arose from this questionnaire comparing with the result of annual reports. It seems that managers are increasingly considering relevant the reputational issues within their business activities (when in fact, they disclosed low information about reputational risks on the annual reports). This may represent a trend for the near future by increasing and allocating more resources for the communication of Risks.

On the other hand, we tried to figure out a possible reason for the concerns of managers about reputational and regulatory risks. We conclude the most common strategy used by those companies was the **foreign direct investment** (as it is possible to see from the table below) which makes them more exposed to those risks (regulatory) and also being closer to customers (reputational). Furthermore an increasing part of their revenues arise from overseas which also contributes for the engagement of these companies.

Chart 4 - Common strategy used on foreign markets

| # | Answer | Responses |
|---|---|-----------|
| 1 | Foreign Direct Investment | 7 0.64 |
| 2 | Exporting | 5 0.45 |
| 3 | Sales Agent | 3 0.27 |
| 4 | Investments in Equity in others Companies | 3 0.27 |

6.3. Risk Monitoring and Reporting

Within this topic we provide the maturity's level of important factors that are related with Risk monitoring and disclosure. Firstly, our survey reveals that from our results that the **level of maturity** regarding the “**Risk disclosure**” either qualitative or quantitative is not high. However, in terms of **Risk Management**, it seems that PSI-20 companies' Index have a higher level regarding this topic because it is possible to see a focus mainly on the **Risk Mitigation, Contingent Plans and Risk Monitoring**.

Table 8 - Maturity level of different factors

| Question nº 17 | | Much Lower | Slightly Lower | About the Same | Higher | Much Higher | Total Responses | Mean |
|-----------------|---|------------|----------------|----------------|--------|-------------|-----------------|------|
| Risk Management | Risk Governance | 0 | 3 | 7 | 6 | 2 | 18 | 3.39 |
| | Risk Mapping | 0 | 3 | 8 | 5 | 2 | 18 | 3.33 |
| | Risks' assessment: Qualitatively | 0 | 2 | 8 | 5 | 3 | 18 | 3.5 |
| | Risks' assessment: Quantitatively | 1 | 2 | 9 | 2 | 4 | 18 | 3.33 |
| | Risk Mitigation and Internal Control Systems | 0 | 1 | 5 | 8 | 4 | 18 | 3.83 |
| | Contingence Plans & Business Continuity Plans | 1 | 1 | 5 | 9 | 2 | 18 | 3.56 |
| | Risk Monitoring | 0 | 2 | 4 | 10 | 2 | 18 | 3.67 |
| | Risks optimization | 0 | 4 | 8 | 4 | 2 | 18 | 3.22 |
| Risk Reporting | Risks disclosure: Qualitatively | 0 | 2 | 12 | 2 | 2 | 18 | 3.22 |
| | Risks disclosure: Quantitatively | 0 | 3 | 12 | 1 | 2 | 18 | 3.11 |

Although the level of risk disclosure is no high as we mentioned above, table 9 shows that companies want to improve their Risk Reporting approaches and also align them with their internal Risk Management processes.

Table 9 - Allocation of Resources by companies

| Question nº 30 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Total Responses | Mean |
|--|---|---|---|---|---|---|---|-----------------|------|
| Increase the quantitative amount of Risk information disclosed about future events | 0 | 0 | 4 | 5 | 4 | 2 | 0 | 15 | 4.27 |
| Increase the qualitative amount of Risk information disclosed about future events | 0 | 0 | 3 | 8 | 4 | 0 | 0 | 15 | 4.07 |
| Improve the Risk Management approaches | 1 | 0 | 1 | 6 | 3 | 4 | 0 | 15 | 4.47 |
| Improve the Risk Reporting approaches | 0 | 1 | 0 | 6 | 4 | 4 | 0 | 15 | 4.67 |
| Align the Risk Management with Risk Reporting | 0 | 0 | 2 | 6 | 4 | 3 | 0 | 15 | 4.53 |

Furthermore, 73% of the managers believe that their companies will allocate more resources to that subject on the following years. This might represents a good strategy adopt by those companies in order to meet investors' demand. However, the increase allocation of resources may not have a significant impact in **voluntary Risk Reporting**. In fact, most of the managers want to keep their levels of disclosure. Therefore, they want to improve their processes internally, comply with mandatory standards and laws issued and keep the information asymmetry between the company and external investors.

With concern to Risk Management approaches that would be adopted by the companies on the future, the most important factors to which managers would allocate more resources would be the preparation of **forecasts**, **scenarios tests** and **sensitivity analysis** (in order to prevent financial uncertainties and some possible unexpected events), **implementation of IT tools** and **creation of new processes** and procedures that will support the Risk management among the Consolidation Groups (see appendix 11)

6.4. Reasons of Risk Reporting

As we mentioned in the literature review, there are many possible reasons for the disclosure of information by managers. We tried to figure out what were the main drivers for the communication of risks made by those companies. After analyzing our results we concluded that the main reasons were related to the external perceptions that people have of companies regarding the **Brand Image** and **financial position** (namely the rating given by the Agencies, short-term positive earnings and reduction of company's cost of capital). On the other hand,

help investors in their process of investments decision was considered also important to disclose additional information by managers.

Table 9 reveals our results discussed above:

Table 10 - Reasons for the Risk Communication

| Question | Strongly Disagree | Disagree | Somewhat Disagree | Neither Agree nor Disagree | Somewhat Agree | Agree | Strongly Agree | Total Responses | Mean |
|--|-------------------|----------|-------------------|----------------------------|----------------|-------|----------------|-----------------|-------------|
| Reduce the asymmetry of information between insiders and investors (show the future strategies) | 1 | 1 | 1 | 3 | 3 | 4 | 2 | 15 | 4.73 |
| Low concentrated ownership, so shareholders demand much information about the company | 2 | 2 | 0 | 5 | 3 | 3 | 0 | 15 | 3.93 |
| Reduce the cost of capital of the company (external investors, banks) | 0 | 0 | 2 | 2 | 5 | 6 | 0 | 15 | 5 |
| Impacts on company's stock market (short-term positive earnings) | 0 | 0 | 2 | 3 | 4 | 6 | 0 | 15 | 4.93 |
| Help investors to make investments' decisions | 0 | 0 | 1 | 0 | 3 | 6 | 5 | 15 | 5.93 |
| Improve the rating given by analysts | 0 | 0 | 1 | 4 | 2 | 5 | 3 | 15 | 5.33 |
| Raise funds | 1 | 1 | 2 | 2 | 4 | 5 | 0 | 15 | 4.47 |
| Brand Image and Awareness of Firm Risk Profile | 0 | 0 | 1 | 0 | 7 | 4 | 3 | 15 | 5.53 |

From the table above it is possible to conclude that managers did not allocate much importance regarding the topic of **information asymmetry** as they pointed in the option of **helping external investors** (when in fact, those things are related). Therefore, we may conclude that most of the companies like to be funded by external investors providing the lowest possible information disclosed to them.

Finally, almost the managers pointed the same key-factors that would be important for a company to develop a well succeed Corporate Risk Reporting represented on the table as is follows:

Table 11: Key-factors for a good Risk communication approach

| Question | Not at all Important | Very Unimportant | Somewhat Unimportant | Neither Important nor Unimportant | Somewhat Important | Very Important | Extremely Important | Total Responses | Mean |
|--|----------------------|------------------|----------------------|-----------------------------------|--------------------|----------------|---------------------|-----------------|------|
| Help by top management | 0 | 0 | 0 | 0 | 4 | 7 | 4 | 15 | 6 |
| Training and knowledge share | 0 | 0 | 0 | 3 | 7 | 4 | 1 | 15 | 5.2 |
| Show the materiality and tangibility | 0 | 0 | 0 | 4 | 3 | 5 | 3 | 15 | 5.47 |
| Time and efforts | 0 | 0 | 0 | 2 | 6 | 7 | 0 | 15 | 5.33 |
| Enough tools to manage and process all | 0 | 0 | 0 | 1 | 8 | 4 | 2 | 15 | 5.47 |
| Internal Auditing | 0 | 0 | 1 | 4 | 4 | 5 | 1 | 15 | 5.07 |
| Enough budget to generate tools and resources for a good RM approach | 0 | 0 | 2 | 4 | 6 | 3 | 0 | 15 | 4.67 |

Most of managers have considered important factors such as **help by top managers** (willingness to disclose), “**materiality and tangibility**” (information needs to be reliable and verifiable otherwise it could create wrong perspectives on investors’ minds) and “**enough tools**” in order to improve the disclosure of risks by the companies. Contrary to these results, the less important factor considered by managers for a good risk communication was the concerns about the budget that should allocate in this area.

Chapter 7. Conclusions and Future Research

7.1 Final Conclusions

This study examined the relation that some independent factors may have on corporate risk communication based on the annual reports of PSI-20 companies Index. Additionally, a survey was used in order to study the trends and managers' opinions about this topic. Both studies have complemented the literature review by adding relevant insights.

The empirical evidence from the first part was able to enrich the research on both the quality of the annual reports and independent variables like profitability, size, independent members of supervisory board, etc. Furthermore, it also covered the existing relations between these subjects. For instance, it was possible to find that the total assets were important to improve the standards of corporate risk disclosure by companies. Moreover, it was also found that specific events such as the issue of Basel II and III, a financial crisis or the issue of a new accounting standard have significant impact on the risk communication by the PSI-20 companies' Index.

The empirical evidence from the second part was also important to identify the important factors and reasons that may influence the disclosure of information by companies and the trends that will be adopted by the companies in the future.

Looking back at the research questions initially defined, the following conclusions may be taken:

1) What are the main risks disclosed in the annual reports of PSI-20 companies index?

As previously mentioned in the analysis, the **main risks** found in the annual reports were **financial risks**, **operational risks** and **market risks**. First of all, **financial risks** are important because they may have significant impact on the companies' performance. Those companies must have internal control systems to assess financial factors such as liquidity and credit risk in order to prevent possible unexpected future events that may influence negatively its financial performance. Moreover, highly regulated industries such as the banking industry, made companies within this sector, comply with the standards and disclosure more information to the markets.

On the other hand, **market risks** previously defined as the risks inherent to the launch of new strategies by competitors. Products' demand are also important due to the competition either in domestic and foreign market.

Finally, the **operating risks** had also an important role in the businesses of several companies. Throughout the years companies have been concerned about possible unexpected events that may occur in their daily basis activities (for instance, the risk of damage in internal control systems).

2) Is there any relationship between the quality of Risk disclosure and variables such as coverage, profitability, capital structure, size of the company, events (IFRS or financial crisis) level of internationalization, information period, industry and Independent Members of Supervisory board?

There are some important relationships that should be highlight. It was concluded that specific events (such as the issue of a reporting standard, financial crisis, Basel II and III) and also the size of the companies were important in this empirical study. Firstly, the **Coverage ratio** had a significant influence in this model because it was also related with the number of words disclosed, as previously mentioned. In this empirical study it found that if a company increases its extension of risk communication, that company also increases the quantity of information disclosed.

All the **events** that occurred during the time-frame of this empirical research strongly influenced the way managers act about the risk communication of their companies. The events reflected the supervisors' concerns and implied the creation of new rules.

Finally, the **size** (total assets) of the company influenced the quality of risk disclosure, which means that corporations with large dimensions also disclose more information about risks.

3) What are the most important factors that drive managers to disclose information?

This survey reveals that the most important factors that led managers to disclose more information were related with **Brand Image, financial indicators** (reduce cost of capital, improve the rating, impact on stock price) and **help investors** in decisions. Brand image might also be associated with transparency and quality of the company, which is extremely important in every market. The role of rating agencies seems to be very important for companies because it can affect investments made by external investors. Also, the cost of capital and the change on the stock price are important for the current earnings of companies. Therefore they like to provide enough information in order to attract new investors. However, they do not disclose all the information and results obtained. This may be considered as **selective disclosure** by keeping a certain level of information asymmetry between external investors and managers.

4) Is it possible to identify, from the companies' perspective, the trend of future risk disclosure?

The corporate scandals that occurred in the past had a strong impact in the companies namely on the managers' minds. Nowadays, investors demand and require a better communication about the risk reporting made by companies, namely in the way and the amount of information disclosure. As mentioned, managers want to improve the Risk Reporting approaches and also align them with the Risk Management that is already implemented in their companies. Furthermore, managers also believe that their companies want to allocate more resources on this topic in the future. Contrary to expectations, they want to keep the same level of information disclosed about risks (that leads to keep the level of information asymmetry between insiders and outsiders). Therefore, it may not be expected the increase of voluntary risk disclosure by companies in the future.

7.2. Limitations and Future Research

In spite of all the efforts made for this thesis to be as complete and accurate as possible, it has some limitations that it was tried to be overcome. The data used on the first part of this project (annual reports) was a bit limited in comparison with other studies on the project but in different markets. It was selected the Psi-20 companies Index (even with companies that nowadays are not within that index) which is currently constituted by few companies comparing with other European indexes. However, the analysis was based on the Portuguese market in order to show and provide some possible explanations regarding this topic of risk communication. It is known that bigger samples provide more accurate results. Therefore, regarding this issue, it is suggested for next researchers to expand the sample.

Another awkward point that was hard to manage during this study was mainly related to the subjectivity that is implicit in every annual report of each company. This assessment reflects the author's assessment regarding on the word identification of risks topics namely all the words that should be accounted for the computation of the dependent variable. Therefore, next studies should select more than one person to make this kind of assessment in order to mitigate the level of subjectivity either in the annual reports or author's point of view.

On the other hand, it was considered that quantity variable, which represents the dependent variable in this study, would be a proxy of the quality of information. However, several authors have studied the topic of the quality of information by creating complex Indexes for the assessment of that quality. It means that our model may be improved in future studies namely on the identification of how and what is disclosed about risks on the annual reports. Moreover, for future assessments it would be interesting to define new different independent

variables in order to study the quality of Risk communication. For instance, incorporating the variable of the ownership structure (high or low concentrated) of a company would be a great add value in order to see its influence on the disclosure of risk information. It is common for a company that has a high ownership concentration to disclose less information to markets. On the other hand the type of shareholders on Board's Members would be also important to assess. If a company has in its Board's Administration directors that represent banks or large non-financial corporations, managers should comply with the requirements and it would be expected that those shareholders would require more information because they have a significant position on the Shareholders' Equity.

Finally, regarding the survey sent to the PSI-20 Companies Index as previously mentioned caused some difficulties. First of all, the access to some members of the Boards was really hard to make without additional support from Auditors. The type of information that was asked in this survey might be considered confidential and some companies are not allowed to share that information. Therefore, for future studies an alternative could be to contact the Euronext Stock Exchange in order to access the managers. A complementary study of this topic could be the elaboration of another survey but for investors in order to identify which kind of information are they expecting from the companies.

Chapter 8. References

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Chapter 9. Appendices

Appendix 1: Type of Risk and Its definition

| Definition (in accordance to ICAEW) | Type of Risk in this Dissertation |
|--|--|
| <p>The risk that cash flows and financial risks are not managed cost-effectively to: (1) maximize cash availability, (2) reduce uncertainty of currency, interest rate, credit and other financial risks, or (3) move cash funds quickly and without loss of value to wherever they are needed most.</p> <ul style="list-style-type: none"> • Financial Risks | Financial Risks |
| <p>The risk that operations are inefficient and ineffective in executing the firm's business model, satisfying customers and achieving the firm's quality, cost and time performance objectives</p> <ul style="list-style-type: none"> • Operations Risks | Operations Risks |
| <p>The risk associated with future business plans and strategies, including plans for entering new business lines, expanding existing services through mergers and acquisitions, enhancing infrastructure, etc</p> <ul style="list-style-type: none"> • Strategic Risks | |
| <p>The risk that the information technologies used in the firm (1) are not operating as intended, (2) are compromising the integrity and reliability of data and information, (3) are exposing significant assets to potential loss or misuse, or (4) are exposing the firm's ability to sustain the operation of critical processes.</p> <p>Information technology Risks</p> | |
| <p>Actual or potential threat of adverse effects on living organisms and environment by effluents, emissions, wastes, resource depletion, etc. that arise out of an organization's activities.</p> <ul style="list-style-type: none"> • Environmental Risks | Environmental Risks |
| <p>The risk that managers and employees (1) are not properly led, (2) do not know what to do when they need to do it, (3) exceed the boundaries of their assigned authorities, or (4) are given incentives to do the wrong thing.</p> <ul style="list-style-type: none"> • Empowerment Risks | Might be considered in Human Resources management Risks |
| <p>The risk of management fraud, employee fraud, illegal acts and unauthorized acts, any or all of which could lead to reputation loss in the marketplace.</p> <ul style="list-style-type: none"> • Integrity Risks | Reputational Risks |

Appendix 2 – Qualitative characteristics

| Name | Definition |
|--------------------------|--|
| Comparability | Information about a reporting entity is more useful if it can be compared with similar information about other entities and with similar information about the same entity for another period or another date. Comparability enables users to identify and understand similarities in, and differences among, items |
| Verifiability | Verifiability helps to assure users that information represents faithfully the economic phenomena it purports to represent. Verifiability means that different knowledgeable and independent observers could reach consensus, although not necessarily complete agreement, that a particular depiction is a faithful representation |
| Timeliness | Timeliness means that information is available to decision-makers in time to be capable of influencing their decisions. |
| Understandability | Classifying, characterizing and presenting information clearly and concisely makes it understandable. While some phenomena are inherently complex and cannot be made easy to understand, to exclude such information would make financial reports incomplete and potentially misleading. Financial reports are prepared for users who have a reasonable knowledge of business and economic activities and who review and analyze the information with diligence. |

By International Accounting Standards Board

Appendix 3 - Survey

Risk Reporting

“Dear Managers, I am currently doing a Master program in Corporate Finance and Control at Católica Lisbon School of Business and Economics and during this semester I am working on my Master thesis in Risk Reporting and Risk of Internationalization.

Those subjects have been receiving increasing attention and it is expected that they will play an important role in the business world. The investors’ minds have changed and now they demand more information about possible future events that may influence the performance of the companies. The aim of this survey is to extract some conclusions about the factors that may influence the quality and quantity of risk information disclosure from the PSI-20 companies Index. Therefore, we would like to know your opinion as Managers of important Portuguese companies and specifically if there is any trend for the next years regarding this subject of Risk Reporting.

This survey should be answered by (TARGET): People that are aware of this subject and more important, that play a Risk Management or Risk Reporting position.

The data that I will collect through this survey is truly confidential and it will only be used for my thesis Research purpose.

The estimated time for this survey will be between 10 and 15 minutes.

I would like to thank you in advance for your availability to answer this survey.

Q1 From the list below choose the industry which your company belongs to:

- ☐ Construction (1)
- ☐ Finance and Insurance (2)
- ☐ Professional Scientific, technical services (3)
- ☐ Retail and wholesale trade (4)
- ☐ Real estate, rental and leasing (5)
- ☐ Health care and Social assistance (6)
- ☐ Transportation, warehousing (7)
- ☐ Arts, entertainment (8)
- ☐ Manufacturing, Agriculture (9)
- ☐ Other services (10)

Q2 Could you choose the alternative that most fit your company’s total Revenues (host plus foreign markets):

- ☐ Total Revenues below 50 Million (1)
- ☐ Total Revenues between 50 Million and 150 Million (2)
- ☐ Total Revenues between 150 Million and 300 Million (3)
- ☐ Total Revenues above 300 Million (4)

Q3 Is your company operating in foreign markets?

- ☐ Yes (1)
- ☐ No (2)

If No Is Selected, Then Skip To Could you select the level of your qu...

Q4 Could you tell me in which markets is your company operating?

- ☐ Brazil (1)
- ☐ Argentina (2)
- ☐ Colombia (3)
- ☐ Mexico (4)
- ☐ Angola (5)
- ☐ Mozambique (6)
- ☐ Venezuela (7)
- ☐ Chile (8)
- ☐ Paraguay (9)
- ☐ USA (10)
- ☐ European countries (11)
- ☐ New Zealand (12)
- ☐ Others (13) _____

Q5 How long have you been operating in those markets?

- ☐ Between 1 and 5 years (1)
- ☐ Between 6 and 10 years (2)
- ☐ Between 11 and 15 years (3)
- ☐ Between 16 and 20 years (4)
- ☐ More than 20 years (5)

Q6 What is the percentage that your sales in foreign markets represent in your total revenues (approximately):

- ☐ Sales below 10% (1)
- ☐ Sales between 10% and 25% (2)
- ☐ Sales between 26% and 50% (3)
- ☐ Sales between 51% and 75% (4)
- ☐ Sales between 76% and 100% (5)

Q7. Could you point out according to the scale from 1(not important at all) to 7 (extremely important) in the list below what were the main reasons for your company went overseas:

| | 1 (1) | 2 (2) | 3 (3) | 4 (4) | 5 (5) | 6 (6) | 7 (7) |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1) Low-cost manufacturing (1) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2) Growth (increase customer base, sales and revenues) (2) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3) Technology assistance (3) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4) Obtain resources (4) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5) Looking for new ideas (5) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6) Diversification (reduction of company exposure) (6) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7) New and international Employees (7) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8) New partnerships to operate in those markets (8) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q8 In the foreign countries that you have selected previously, could tell me now what was the most common strategy that your company have chosen when entered in those markets?

- ☐ Foreign Direct Investment (1)
- ☐ Exporting (2)
- ☐ Sales Agents (3)
- ☐ Investments in Equity in others companies (4)

Q9 Could you rank the importance of the factors when a company is deciding its strategy between FDI (more exposed) or Exporting (less exposed)?

- _____ Market Potential (1)
- _____ Competitive strategy (2)
- _____ Government policies (3)
- _____ Firm specific know-how (4)
- _____ Global strategy factors (5)

Q10. Usually, when your company goes to another market which strategy is adopted internally in order to operate there?

- ☐ There is a unique and standard frame for all projects (1)
- ☐ Each strategy is modulated according the market's specification (2)

Q11 In your opinion, which strategy is the best to manage all the projects that your company owned?

- ☐ Standardized models (1)
- ☐ Standardized and Adjusted models (2)
- ☐ New models (3)

Q12. In your opinion, the tools used in the internationalization process should be based on what? Please select in the scale from 1 (not important at all) to 7 (extremely important).

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Past experience on previous projects (1) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Probable future economics events (2) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Market trends (3) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Demand's forecast (4) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Competitors side (5) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| All of them (6) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Other reason: (7) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q13 Did your company switch the organizational structure when she went overseas?

- ☐ Yes (1)
- ☐ No (2)

Now I would like to know more about the Risk management and Reporting that usually is made in your company in general:

Q14 In the home-based market, could you choose for each risk the importance that they have on your company's financial performance? The scale is from 1 (Not important) until 7 (Extremely important).

| | 1 (1) | 2 (2) | 3 (3) | 4 (4) | 5 (5) | 6 (6) | 7 (7) |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Financial Risks (regarding to the financial markets, fiscal volatility or even liquidity management) (1) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Market Risks (strategy implementation, competitors' growth or demands volatility) (2) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Regulatory Risks(related with the requirements or changes imposed by the government) (3) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Operational Risks (safety, health care, infrastructure and equipment) (4) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Reputational Risks (Regarding the brand and image of the company) (5) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Social and Economic Risks (Risks inherent to economic and social context) (6) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Human Resources Management Risks (retain the best employees, productivity etc.) (7) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Environmental Risks (8) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Supply chain Risks (relations with the suppliers, distributors) (9) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q15. Could you point out again the importance that each risk has in foreign markets? The scale is from 1 (Not important) until 10 (Extremely important).

| | 1 (1) | 2 (2) | 3 (3) | 4 (4) | 5 (5) | 6 (6) | 7 (7) |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Financial Risks (regarding to the financial markets, fiscal volatility or even liquidity management) (1) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Market Risks (strategy implementation, competitors' growth or demand's volatility) (2) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Regulatory Risks(related with the requirements or changes imposed by the government) (3) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Operational Risks (safety, health care, infrastructure and equipment) (4) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Reputational Risks (Regarding the brand and image of the company) (5) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Social and Economic Risks (Risks inherent to economic and social context) (6) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Human Resources Management Risks (retain the best employees, productivity etc.) (7) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Environmental Risks (8) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Supply chain Risks (relations with the suppliers, distributors) (9) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q16 Does your company have Risk Management policies?

- ☐ Yes (1)
☐ No (2)

Q17. Could you point out the level of maturity regarding the risk management and reporting approaches that have been doing by your company:

| | Much Lower (1) | Slightly Lower (2) | About the Same (3) | Higher (4) | Much Higher (5) |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Risk Governance (1) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Risk Mapping (2) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Risks' assessment: Qualitatively (3) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Risks' assessment: Quantitatively (4) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Risk Mitigation and Internal Control Systems (5) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Contingence Plans & Business Continuity Plans (6) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Risk Monitoring (7) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Risks optimization (8) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Risks disclosure: Qualitatively (9) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Risks disclosure: Quantitatively (10) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q18 Could you rank for each alternative the level of significance that your company will assume on the next years about Risk Management practices and approaches?

- _____ Align the processes and procedures of Risk management with the business operations (1)
- _____ Development of a "Risk cultural" which would be spread in the company (2)
- _____ Improve the quality and frequency of Risk report information to the stakeholders (3)
- _____ Improve the tools and methodologies of Risk assessment (4)
- _____ Creation of new processes and procedures of Risk management that would be integrated on company's business (5)
- _____ Creation of forecasts, scenarios tests and sensitivity analysis (6)
- _____ Implementation of IT tools that would support the Risk Management of the company (7)

Q19 Does your company have Risk Reporting policies nowadays?

- ☐ Yes (1)
- ☐ No (2)

Q20. About the risks that you have answered previously, could you tell me for each of them how much are you going to allocate on the next three years in terms of disclosing information?

| | 1 (1) | 2 (2) | 3 (3) | 4 (4) | 5 (5) | 6 (6) | 7 (7) |
|--------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Financial Risks (1) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Market Risks (2) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Regulatory Risks (3) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Operational Risks (4) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Reputational Risks (5) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Social and Economics Risks (6) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Human Resources Management Risks (7) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Environmental Risks (8) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Supply chain Risks (9) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q21 What were the main reasons to start disclose more information about the company?

- _____ Issue of new regulatory standards (1)
 _____ Concerns of shareholders and stakeholders (2)
 _____ Become more transparent (3)
 _____ Impact on financial side (company's share price, reduce cost of capital, improve the rating of the company) (4)
 _____ Brand image and awareness (5)

Q22 How long has you company been doing the reporting of the risks?

- ☐ Less than 1 year (1)
☐ Between 1 and 3 years (2)
☐ Between 3 and 6 years (3)
☐ Between 6 and 10 years (4)
☐ More than 10 years (5)

Q23 How often does your company release some information about risks?

- ☐ Monthly (1)
☐ Every three months (2)
☐ Semiannually (3)
☐ Annually (4)

Q24 Regarding the information disclosed could you tell me which type of information usually your company issue about risks?

- ☐ Numerical information (quantify the amounts that those risks might change, the variation on company's financial performance etc.) (1)
☐ Qualitative information (strategies, environment and business description etc) (2)
☐ Both of them (3)

Q25 About your company's risk disclosure policies, what is the percentage of the information that can be considered voluntary disclosure?

- ☐ Between 0% to 20% (1)
- ☐ Between 21% to 35% (2)
- ☐ Between 36% to 50% (3)
- ☐ Between 51% to 75% (4)
- ☐ Between 76% to 100% (5)

Q26 About the information disclosed, is that information based in which period of time?

- ☐ Past (1)
- ☐ Present (2)
- ☐ Future (3)

Q27 Where may an investor find information about the risks that a company faces in markets?

- ☐ Separate and independent released report (1)
- ☐ Spread in the annual report (MD&A and the notes to financial statement) (2)
- ☐ In the annual report with a specific space (only related with those risks) (3)
- ☐ Website (4)
- ☐ Direct solicitation by customers (5)
- ☐ Presentation Sessions to investors, Internal appointments (6)

Q28 Do you think that investors are concerned about the future risks that might affect your company?

- ☐ Yes (1)
- ☐ No (2)

Q29 Do you think that your company will allocate more resources to that specific topic of Risk Reporting during the next years?

- ☐ Yes (1)
- ☐ No (2)

Q30. Could you select for each alternative according to the scale from 1 to 7 the trend that will be adopted by your firm in order to fit the investors' expectations?

| | 1 (1) | 2 (2) | 3 (3) | 4 (4) | 5 (5) | 6 (6) | 7 (7) |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Increase the quantitative amount of Risk information disclosed about future events (1) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Increase the qualitative amount of Risk information disclosed about future events (2) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Improve the Risk Management approaches (3) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Improve the Risk Reporting approaches (4) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Align the Risk Management with Risk Reporting (5) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q31. In your opinion, could you point out for each alternative the importance of why the companies should disclose a high quality level of information about the risks:

| | Strongly Disagree (1) | Disagree (2) | Somewhat Disagree (3) | Neither Agree nor Disagree (4) | Somewhat Agree (5) | Agree (6) | Strongly Agree (7) |
|---|--------------------------|-----------------------|--------------------------|-----------------------------------|-----------------------|-----------------------|-----------------------|
| Reduce the asymmetry of information between insiders and investors (show the future strategies) (1) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Low concentrated ownership, so shareholders demand much information about the company (2) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Reduce the cost of capital of the company (external investors, banks) (3) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Impacts on company's stock market (short-term positive earnings) (4) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Help investors to make investments' decisions (5) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Improve the rating given by analysts (6) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Raise funds (7) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Brand Image and Awareness of Firm Risk Profile (8) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q32 What is your opinion about the trend that will be adopted by your company regarding the voluntary risk disclosure?

- ☐ The company wants to increase the voluntary disclosure of information (1)
- ☐ The company wants to keep the level of voluntary risk disclosure (2)
- ☐ The company wants to reduce the level of voluntary risk disclosure (3)

Q33. In your point of view, what would be the key-factors to develop the risk reporting in a company? The scale is from 1 (Not at all important) until 7 (Extremely important).

| | Not at all Important (1) | Very Unimportant (2) | Somewhat Unimportant (3) | Neither Important nor Unimportant (4) | Somewhat Important (5) | Very Important (6) | Extremely Important (7) |
|--|--------------------------|-----------------------|--------------------------|---------------------------------------|------------------------|-----------------------|-------------------------|
| Help by top management (1) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Training and knowledge share (2) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Show the materiality and tangibility (3) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Time and efforts (4) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Enough tools to manage and process all the information (5) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Internal Auditing (6) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Enough budget to generate tools and resources for a good RM approach (7) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q34 Before entering in new markets, did you predict all the risks that your company has faced?

- ☐ Yes (1)
- ☐ No (2)

Q35 Could you tell me what were the tools that your company has used in order to predict those risks?

- ☐ Risk management approaches (1)
- ☐ Previous experiences (2)

Q36 Do you think the risks that you have found when reach the market could have been predicted?

- ☐ Yes (1)
- ☐ No (2)

Q37 After that experience, did you create any tool that would help the company to predict and managed future risks in new and existent markets?

- ☐ Yes (1)
- ☐ No (2)

Q38 Could you select the level of your qualifications?

- ☐ Diploma (1)
- ☐ Degree (2)
- ☐ Master and above (3)
- ☐ Professional (4)

Q39 How old are you?

Q40 How long have you been dealing with this Risk subject in your company?

- ☐ Between 1 and 3 years (1)
- ☐ Between 3 and 5 years (2)
- ☐ Between 5 and 10 years (3)
- ☐ More than 10 years (4)

Appendix 4 – Coverage Indicator Table

| Companies | 2005 | 2007 | 2009 | 2011 | 2013 | Average |
|------------------|-------------|-------------|-------------|-------------|-------------|----------------|
| Altri SGPS | 0.111 | 0.148 | 0.147 | 0.233 | 0.230 | 0.174 |
| Banif | 0.111 | 0.153 | 0.131 | 0.144 | 0.131 | 0.134 |
| BES | 0.166 | 0.148 | 0.145 | 0.158 | 0.179 | 0.159 |
| BCP | 0.148 | 0.168 | 0.322 | 0.327 | 0.194 | 0.232 |
| BPI | 0.185 | 0.162 | 0.155 | 0.160 | 0.162 | 0.165 |
| Brisa | 0.111 | 0.111 | 0.111 | 0.237 | 0.246 | 0.163 |
| Cimpor | 0.184 | 0.141 | 0.130 | 0.429 | 0.472 | 0.271 |
| Cofina | 0.000 | 0.111 | 0.111 | 0.138 | 0.133 | 0.099 |
| EDP | 0.111 | 0.258 | 0.335 | 0.374 | 0.325 | 0.281 |
| Galp | 0.216 | 0.227 | 0.518 | 0.408 | 0.490 | 0.372 |
| Glintt | 0.111 | 0.111 | 0.111 | 0.111 | 0.111 | 0.111 |
| Impresa | 0.000 | 0.111 | 0.111 | 0.111 | 0.111 | 0.089 |
| Inapa | 0.000 | 0.159 | 0.237 | 0.232 | 0.224 | 0.170 |
| Jeronimo Martins | 0.287 | 0.225 | 0.222 | 0.193 | 0.236 | 0.233 |
| Mota Engil | 0.000 | 0.111 | 0.111 | 0.111 | 0.111 | 0.089 |
| Media Capital | 0.243 | 0.233 | 0.237 | 0.244 | 0.221 | 0.236 |
| Novabase | 0.111 | 0.111 | 0.111 | 0.111 | 0.111 | 0.111 |
| Portucel | 0.111 | 0.419 | 0.345 | 0.346 | 0.299 | 0.304 |
| PT | 0.247 | 0.179 | 0.234 | 0.271 | 0.324 | 0.251 |
| REN | 0.000 | 0.111 | 0.131 | 0.180 | 0.178 | 0.120 |
| Semapa | 0.000 | 0.000 | 0.217 | 0.363 | 0.412 | 0.198 |
| Sonae SGPS | 0.168 | 0.156 | 0.118 | 0.117 | 0.128 | 0.137 |
| Teixeira Duarte | 0.000 | 0.111 | 0.252 | 0.289 | 0.285 | 0.187 |
| NOS | 0.000 | 0.204 | 0.178 | 0.180 | 0.000 | 0.112 |

Appendix 5 – OLS Regression, Fixed Effect and Random Effect models

$$\begin{aligned}
 \text{Quantity} = & \textcircled{b} + b1 \text{ Coverage}_{it} + \sum b2 \text{ Profitability indicator}_{it} \\
 & + \sum b3 \text{ Size indicator}_{it} + b4 \text{ Capital Structure}_{it} \\
 & + \sum b5 \text{ Industry Control}_{it} + b6 \text{ Independence of Board's Members}_{it} \\
 & + \sum b7 \text{ Events}_{it} + \textcircled{e_{it}}
 \end{aligned}$$

| Model | Equation |
|----------------|---|
| Fixed Effects | <p>Quality indicator</p> $ \begin{aligned} = & \textcircled{b_{it}} + b1 \text{ Coverage}_{it} + \sum b2 \text{ Profitability indicator}_{it} \\ & + \sum b3 \text{ Size indicators}_{it} + b4 \text{ Capital Strucutre}_{it} \\ & + \sum b5 \text{ Industry Control}_{it} + b6 \text{ Independence of Boards' members}_{it} \\ & + \sum \text{Events or Risk Disclosure standard}_{it} + \textcircled{e_{it}} \end{aligned} $ |
| Random Effects | <p>Quality indicator</p> $ \begin{aligned} = & \textcircled{b} + b1 \text{ Coverage}_{it} + \sum b2 \text{ Profitability indicator}_{it} \\ & + \sum b3 \text{ Size indicators}_{it} + b4 \text{ Capital Strucutre}_{it} \\ & + \sum b5 \text{ Industry Control}_{it} + b6 \text{ Independence of Boards' members}_{it} \\ & + \sum \text{Events or Risk Disclosure standard}_{it} + \textcircled{(u_i + e_{it})} \end{aligned} $ |

Appendix 6– Results of Fixed Effect Model

| | | |
|-----------------------------------|------------------|---|
| F test that all $u_i=0$: | F(23, 79) | 4.3 |
| | Prob > F = | 0.00 |
| Fixed-effects (within) regression | Number of obs | 112 |
| Group variable: B | Number of groups | 24 |
| R-sq: | | |
| within | 0.6566 | Obs per group: min 3 |
| between | 0.1501 | avg 4.7 |
| overall | 0.0054 | max 5 |
| | F(11,77) | 13.38 |
| corr(u_i , Xb) | -0.8327 | Prob > F 0.00 |

Note that in this model the errors are correlated with the regressors

These results were made not considering the robust option

| Quantity | Coef. | Std. Err. | t | P>t | [95% Conf. Interval] | |
|--------------------|---|-----------|------|-----|----------------------|------|
| Coverage | 9.4 | 1.8 | 5.2 | 0.0 | 5.8 | 12.9 |
| R_Assets | -0.1 | 0.0 | -1.3 | 0.2 | -0.1 | 0.0 |
| ProfitMargin | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 |
| T_Assets | 0.0 | 0.0 | -3.1 | 0.0 | 0.0 | 0.0 |
| M_Cap | 0.0 | 0.0 | 0.9 | 0.4 | 0.0 | 0.0 |
| Capital_Struct | -0.7 | 2.6 | -0.3 | 0.8 | -5.9 | 4.6 |
| IndependentMemb | 5.5 | 2.0 | 2.8 | 0.0 | 1.6 | 9.5 |
| Ind_Financial_Dumr | 0.0 | (omitted) | | | | |
| Ind_Construction_D | 0.0 | (omitted) | | | | |
| Dummy07 | 1.9 | 0.4 | 4.8 | 0.0 | 1.1 | 2.7 |
| Dummy09 | 2.6 | 0.4 | 6.3 | 0.0 | 1.8 | 3.4 |
| Dummy11 | 2.7 | 0.4 | 6.2 | 0.0 | 1.8 | 3.5 |
| Dummy13 | 2.6 | 0.4 | 6.0 | 0.0 | 1.8 | 3.5 |
| _cons | 2.8 | 2.5 | 1.1 | 0.3 | -2.2 | 7.7 |
| sigma_u | 3.2185 | | | | | |
| sigma_e | 1.106 | | | | | |
| rho | 0.89425 (fraction of variance due to u_i) | | | | | |

Appendix 7.- Results of Random Effect Model

| | | |
|-------------------------------|------------------|----------------------|
| Random-effects GLS regression | Number of obs | 114 |
| Group variable: B | Number of groups | 24 |
| R-sq: within | 0.6218 | Obs per group: min 3 |
| between | 0.4766 | avg 4.8 |
| overall | 0.5643 | max 5 |
| | Wald chi2(13) | 144.26 |
| corr(u_i, X) = 0 (assumed) | Prob > chi2 | 0 |

Corr(u_i, X) = 0 because this model assume that entity's error term is not correlated with allows for time-invariant variables to play a role as explanatory variables

| Quantity | Coef. | Std. Err. | z | P> | z | [95% Conf. Interval] |
|------------------------|--|-----------|------|----|-----|----------------------|
| Coverage | 8.9 | 1.5 | 5.8 | | 0.0 | 5.9 11.9 |
| R_Assets | 0.0 | 0.0 | -0.7 | | 0.5 | -0.1 0.0 |
| ProfitMargin | 0.0 | 0.0 | 0.5 | | 0.7 | 0.0 0.0 |
| T_Assets | 0.0 | 0.0 | -1.5 | | 0.1 | 0.0 0.0 |
| M_Cap | 0.0 | 0.0 | 1.6 | | 0.1 | 0.0 0.0 |
| Capital_Struct | -0.7 | 1.5 | -0.5 | | 0.6 | -3.6 2.2 |
| IndependentMembers | 2.4 | 1.5 | 1.7 | | 0.1 | -0.4 5.3 |
| Ind_Financial_Dummy | 3.0 | 1.0 | 3.1 | | 0.0 | 1.1 4.9 |
| Ind_Construction_Dummy | -0.4 | 0.6 | -0.7 | | 0.5 | -1.7 0.8 |
| Dummy07 | 1.7 | 0.4 | 4.6 | | 0.0 | 1.0 2.5 |
| Dummy09 | 2.2 | 0.4 | 5.9 | | 0.0 | 1.5 3.0 |
| Dummy11 | 2.3 | 0.4 | 5.5 | | 0.0 | 1.5 3.1 |
| Dummy13 | 2.3 | 0.4 | 5.5 | | 0.0 | 1.5 3.1 |
| _cons | 2.9 | 1.3 | 2.3 | | 0.0 | 0.4 5.5 |
| sigma_u | 0.78 | | | | | |
| sigma_e | 1.10 | | | | | |
| rho | 0.33 (fraction of variance due to u_i) | | | | | |

Rho means that approximately 33% of the variance is due to differences in across panels

Appendix 8 – Hausman Fixed Test

No Robust

| | Coefficients | | | |
|---------------------------------------|--|---------------|---------------------|-----------------------------|
| | (b) Fixed | (B) Random | (b-B) Difference | sqrt(diag(V_b-V_B)) S.E. |
| Coverage | 9.4 | 8.9 | 0.5 | 0.9 |
| R_Assets | -0.1 | 0.0 | 0.0 | 0.0 |
| ProfitMargin | 0.0 | 0.0 | 0.0 | 0.0 |
| T_Assets | 0.0 | 0.0 | 0.0 | 0.0 |
| M_Cap | 0.0 | 0.0 | 0.0 | 0.0 |
| Capital_St~t | -0.7 | -0.7 | 0.1 | 2.2 |
| Independen~s | 5.5 | 2.4 | 3.1 | 1.4 |
| Dummy07 | 1.9 | 1.7 | 0.2 | 0.1 |
| Dummy09 | 2.6 | 2.2 | 0.3 | 0.1 |
| Dummy11 | 2.7 | 2.3 | 0.4 | 0.1 |
| Dummy13 | 2.6 | 2.3 | 0.3 | 0.1 |
| b= | consistent under Ho and Ha; obtained from xtreg | | | |
| B = | inconsistent under Ha, efficient under Ho; obtained from xtreg | | | |
| Test: Ho: | difference in coefficients not systematic | | | |
| chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B) | | | | 18.29 |
| Prob>chi2 | 0.019 | | | Significant results |
| (V_b-V_B is not positive definite) | | | | |

Appendix 9 – Risks on Home and Foreign Markets

Home Market

| Question nº 14 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Total Responses | Mean |
|--|---|---|---|---|---|---|---|--------------------|------|
| Financial Risks (regarding to the financial markets, fiscal volatility or even liquidity management) | 0 | 0 | 0 | 1 | 4 | 7 | 6 | 18 | 6 |
| Market Risks (strategy implementation, competitors' growth or demand's volatility) | 0 | 0 | 2 | 1 | 4 | 5 | 6 | 18 | 5.67 |
| Regulatory Risks(related with the requirements or changes imposed by the government) | 0 | 1 | 0 | 2 | 4 | 4 | 7 | 18 | 5.72 |
| Operational Risks (safety, health care, infrastructure and equipment) | 0 | 0 | 3 | 2 | 7 | 3 | 3 | 18 | 5.06 |
| Reputational Risks (Regarding the brand and image of the company) | 0 | 0 | 1 | 2 | 2 | 7 | 6 | 18 | 5.83 |
| Social and Economic Risks (Risks inherent to economic and social context) | 0 | 0 | 2 | 4 | 7 | 2 | 3 | 18 | 5 |
| Human Resources Management Risks (retain the best employees, productivity etc.) | 0 | 0 | 2 | 5 | 5 | 3 | 3 | 18 | 5 |
| Environmental Risks | 0 | 1 | 4 | 3 | 5 | 3 | 2 | 18 | 4.61 |
| Supply chain Risks (relations with the suppliers, distributors) | 0 | 1 | 2 | 4 | 7 | 3 | 1 | 18 | 4.67 |

Foreign Market

| Question nº 15 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Total Responses | Mean |
|--|---|---|---|---|---|---|---|-----------------|------|
| Financial Risks (regarding to the financial markets, fiscal volatility or even liquidity management) | 0 | 0 | 1 | 2 | 2 | 2 | 4 | 11 | 5.55 |
| Market Risks (strategy implementation, competitors' growth or demand's volatility) | 0 | 0 | 0 | 2 | 1 | 4 | 4 | 11 | 5.91 |
| Regulatory Risks(related with the requirements or changes imposed by the government) | 0 | 0 | 1 | 1 | 1 | 3 | 5 | 11 | 5.91 |
| Operational Risks (safety, health care, infrastructure and equipment) | 0 | 2 | 0 | 0 | 3 | 4 | 2 | 11 | 5.18 |
| Reputational Risks (Regarding the brand and image of the company) | 0 | 0 | 1 | 2 | 3 | 0 | 5 | 11 | 5.55 |
| Social and Economic Risks (Risks inherent to economic and social context) | 0 | 1 | 0 | 3 | 2 | 4 | 1 | 11 | 5 |
| Human Resources Management Risks (retain the best employees, productivity etc.) | 0 | 0 | 2 | 2 | 3 | 3 | 1 | 11 | 4.91 |
| Environmental Risks | 1 | 1 | 0 | 3 | 2 | 4 | 0 | 11 | 4.45 |
| Supply chain Risks (relations with the suppliers, distributors) | 0 | 1 | 1 | 2 | 3 | 3 | 1 | 11 | 4.82 |

Appendix 10 – Risk Management practices

| Question nº 18 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Total Responses | Mean |
|--|---|---|---|---|---|---|---|-----------------|------|
| Align the processes and procedures of Risk management with the business operations | 5 | 5 | 4 | 2 | 1 | 1 | 0 | 18 | 2.56 |
| Development of a "Risk cultural" which would be spread in the company | 5 | 4 | 4 | 2 | 0 | 2 | 1 | 18 | 2.89 |
| Improve the quality and frequency of Risk report information to the stakeholders | 3 | 2 | 2 | 5 | 3 | 1 | 2 | 18 | 3.78 |
| Improve the tools and methodologies of Risk assessment | 3 | 3 | 4 | 6 | 1 | 1 | 0 | 18 | 3.11 |
| Creation of new processes and procedures of Risk management that would be integrated on company's business | 1 | 2 | 3 | 1 | 7 | 3 | 1 | 18 | 4.33 |
| Creation of forecasts, scenarios tests and sensitivity analysis | 0 | 0 | 0 | 1 | 1 | 7 | 9 | 18 | 6.33 |
| Implementation of IT tools that would support the Risk Management of the company | 1 | 2 | 1 | 1 | 5 | 3 | 5 | 18 | 5 |